Jan. 29, 1952 M. SHELLHOUSE 2,583,892

HYSTERECTOMY FORCEPS

Filed Dec. 26, 1950

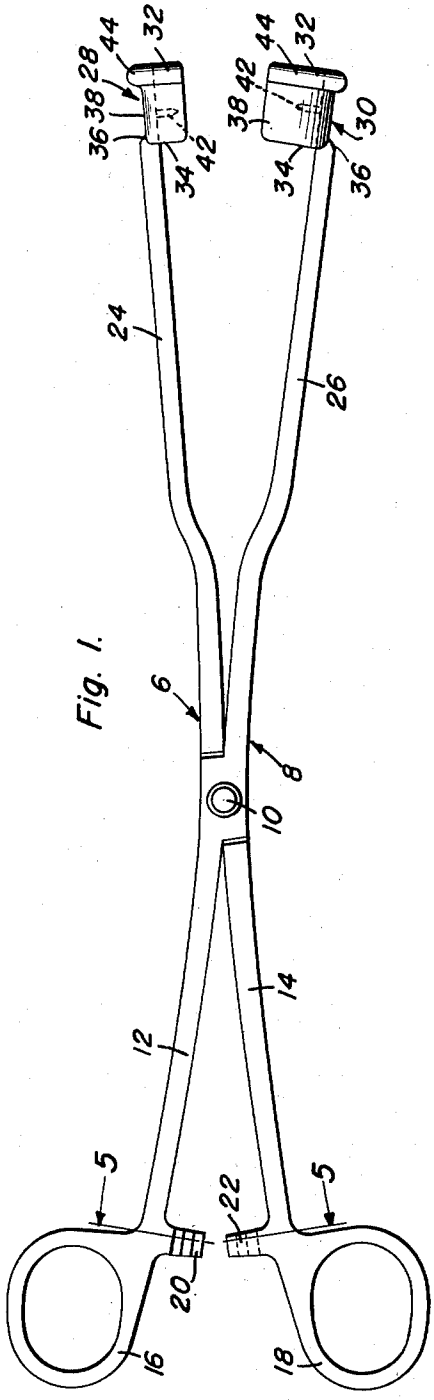


Fig. 1.

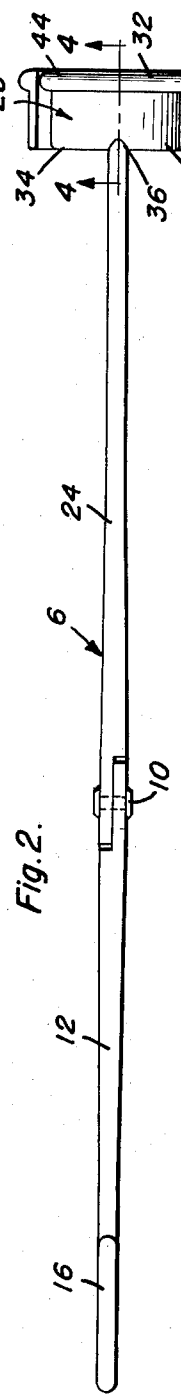


Fig. 2.

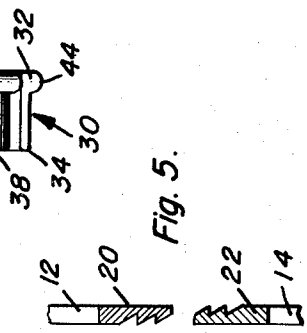


Fig. 5.

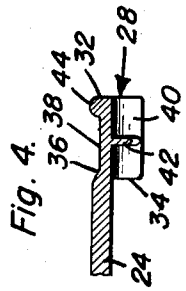


Fig. 4.

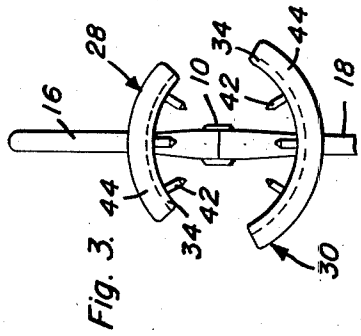


Fig. 3.

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Patented Jan. 29, 1952

2,583,892

UNITED STATES PATENT OFFICE

2,583,892

HYSTERECTOMY FORCEPS

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Application December 26, 1950, Serial No. 202,670

5 Claims. (Cl. 128—321)

1

This invention relates to certain new and useful improvements in surgical forceps and has particular reference to hysterectomy forceps which are precision-made for in toto removal of the human uterus and cervix by excision and the purpose of the instrument is to improve the operation of total hysterectomy so that the cervix may be severed and removed with comparative ease.

Another object of the invention is to provide the surgeon with a correctly designed instrument through the medium of which the operative time in surgery is appreciably shortened from 15 to 30 minutes due to the fact that the especially fashioned jaws or grips materially aid the surgeon in precisely establishing the area of the incision.

A further object of the invention is to provide expertly constructed forceps which, due to special structural features and adaptations, may be handled with requisite nicety and assurance to guard against accidental injury to the ureters and related anatomical structures.

A further object of the invention is to provide a forceps having arcuate jaws in precise opposition to each other, one jaw being substantially semi-circular and the other one quadrantal, whereby they may be utilized as an ovoid cervix clamp, the latter susceptible of being pushed in or up to localize the area of incision with absolute certainty, this in relation to the usual abdominal approach.

Then, too, novelty is predicated on arcuate or curvilineal jaws or grips having suitable retentive prongs and, more particularly, having surface ribs, the latter being highly useful in that they have distinct application not found in any other forceps and serving, in addition, to enable the surgeon to "feel" the ribs or beads through the open abdomen and, in so doing, to gage and guide the steps of handling the scalpel with exactitude and safety to the patient.

What is more, the forceps under advisement provide an instrumentality in which manufacturers and surgeons will find their respective requirements and needs fully met, contained and effectually available.

Other objects, features and advantages will become more readily apparent from the following description and the accompanying sheet of illustrative drawings.

In the accompanying sheet of drawings wherein like numerals are employed to designate like parts throughout the views:

Fig. 1 is a side elevational view of a pair of

2

hysterectomy forceps constructed in accordance with the principles of the instant invention;

Fig. 2 is an edge or plan view of the instrument seen in Fig. 1;

Fig. 3 is an end elevation from the leading end, that is the structure seen from right to left in Fig. 2;

Fig. 4 is a fragmentary section taken on the plane of the line 4—4 of Fig. 2, looking in the direction of the arrows; and

Fig. 5 is a fragmentary detail section taken on the irregular line 5—5 of Fig. 1, looking in the direction of the arrows.

By way of introduction to the following detailed description it is to be pointed out that forceps, pliers, tongs and the like are commonly possessed of the same structural characteristics from a standpoint of underlying basic principles and mechanics of leverage. It is common to the trade to employ crossed hingedly or pivotally connected levers with handle means and reach arms or limbs. It is common to utilize jaws of many styles and shapes on the working or forward ends of the reach arms. So far as is known, there is no available instrument or forceps expressly constructed and designed to enable a surgeon to satisfactorily achieve the wanted end results in performing a complete hysterectomy. The instrument needed to achieve the end results desired may, of course, utilize any appropriate means to actuate the proximal jaw or equivalent members. It will be evident, therefore, that the novelty in this case has to do with suitable lever means and especially designed companion jaw means.

Referring now to the drawings by way of reference numerals and lead lines, one lever unit is denoted by the numeral 6 and the other one by the numeral 8. These levers are crossed and hingedly connected together intermediate their ends as at 10. The levers toward the left define handles 12 and 14 terminating in suitable finger rings or grips 16 and 18. Appropriate lateral toothed detents 20 and 22 are provided to lock the levers in set position. The right hand end portions of the levers provide applicators or reach arms 24 and 26. As stated, novelty in the instant case is not predicated on the means 6 and 8, but rather on the complemental specially designed cervix embracing, closing and clamping jaws 28 and 30, respectively. The jaws are substantially identical in detailed construction. It is to be noted, however, that the shorter jaw is quadrantal, this being the jaw 28. The other longer jaw is substantially semi-circular as at 30.

Each jaw or grip is fundamentally or basically the same in construction. That is to say, each jaw is of general rectangular form and may be properly referred to as a smooth surfaced plate. Each plate is bowed longitudinally and therefore defines a curvilineal or arcuate jaw construction. The leading edge portion of each jaw, denoted at **32** is uninterruptedly smooth and provides a satisfactory scalpel guiding edge. The reach arm joins the rear edge **34** at the central point **36**. The outer peripheral or convex surface is denoted at **38** and the inner concave or peripheral surface is denoted at **40**. This latter surface is provided with circumferentially spaced radial suitably pointed prongs **42** to penetrate the cervix. On the outer peripheral surface an integral prominent rib or bead **44** is formed. This rises to the desired degree beyond the peripheral surface **38** and the rib is preferably semi-cylindrical in cross-section. The ribs **44** are commensurate in lengths with the lengths of the jaws (see Fig. 3).

The longitudinal axes of the respective jaws **28** and **30** are at right angles to the longitudinal axes of the reach arms **24** and **26**. The two jaws are in direct opposition to each other as best illustrated in Fig. 2.

The instrument shown and described provides a satisfactory grasp. The grasp is not for pulling as in obstetrical and similar surgical forceps. On the contrary the action is to push upward only after the forceps is closed over the cervix. The grasp and upward push and the ovoid outline of the jaws when brought together with the beading on the edge provide a distinct application not found in other forceps. When the required act is performed through the vagina, the beading or ribs may be felt through the open abdomen. It is over the ribs or beading that an incision is made in the vaginal structure to remove the entire uterus and cervix in toto. In using these forceps a surgeon may be assured that injury to the female operated on is not likely to happen. The instrument is designed to improve the operation and simultaneously reduce the time of the operation as before stated.

Operation of the forceps.—After the vaginal tract is prepared surgically, the cervix is exposed, as for any surgical operation with a vaginal speculum or retractors. The cervix is then grasped with the forceps and securely closed and held firm by means of the several small prongs. After the routine abdominal incision for total hysterectomy, stripping the bladder and peritoneum away from the uterus and cervix, an assistant or nurse then applies slight pressure forward on the hysterectomy forceps so that an elevation of the pelvic floor occurs. This maneuver shows the operator the junction of the cervix and vaginal vault by palpation. At this time an incision by sharp scalpel is made over the beaded portion, resulting in complete severance of the vaginal tissue in a circumscribed manner, thus preventing any cervical tissue to remain as a nidus for complications at a later date.

After completion of this procedure, the assistant or nurse disengages the forceps from the cervix. The operation is then completed as desired by the surgeon. By this methed the cervix is removed completely, the ureters are not injured, and the operative time is shortened.

It is to be further pointed out that as the instrument is pushed upwardly the ureters are laterally pushed away from the uterus (not shown) to avoid injury when the incision is made on a line which is parallel with and immediately alongside of the leading edges **32**.

Reverting to certain important and valuable aspects of this matter, it will be clear that a long jaw is used because the ureters will be approximately at each edge, thereby elevation at this junction will help to prevent injury to the ureters and urinary bladder. The short jaw, on the other hand acts against the utero-sacral ligaments, which are behind it.

After the abdomen is opened and necessary technique accomplished to free the uterus from the bladder and other structures the "rib" on top or long jaw is felt between the cervix and bladder. Likewise, the "rib" on the short jaw is felt on the back portion between the cervix and posterior vaginal vault at which junction the utero-sacral ligaments are attached, therefore, both ribs may be felt through the abdominal incision when the assistant or nurse pushes upward with the instrument. This causes the concave pelvic floor to become convex. Due to this maneuver both jaws can be palpated simultaneously and incision made to extirpate the uterus with the cervix. The incision is made on the "ribs"—the tissue severed is the uppermost wall of the vagina at the junction of the vagina with the cervix.

This instrument is expressly designed for total hysterectomy only. Its use reduces the danger in accidental injury to the ureters, reduces the danger in accidental injury to the urinary bladder and rectum, and shortens the time of operation. No cervical tissue is left behind as it may happen unknowingly without this instrument. The jaws clamp with requisite nicety on cervix, closing it tight and, in so doing they prevent seepage from cervical os.

It is thought that persons skilled in the art to which the invention relates will be able to obtain a clear understanding of the invention after considering the description in connection with the drawings. Therefore, a more lengthy description is regarded as unnecessary.

Minor changes in the shape, size and arrangement of details coming within the field of invention claimed may be resorted to in actual practice, if desired.

Having described the invention, what is claimed as new is:

1. Hysterectomy forceps for in toto removal of the human uterus and cervix by excision comprising a pair of crossed pivotally connected levers having handles and reach arms, substantially rectangular smooth-faced plates mounted on the respective forward ends of said arms, said plates being longitudinally bowed and providing arcuate jaws, one short jaw and one long jaw, and means on the outer peripheral surfaces of said jaws for establishing the position of the cervix relative to the ureters and companion anatomical structures, said means being capable of being felt through the open abdomen and prescribing the exact line of the incision which is to be made.

2. The structure defined in claim 1, said means comprising prominent outstanding ribs commensurate in lengths with the lengths of said jaws.

3. The structure defined in claim 1, said means comprising prominent outstanding ribs commensurate in lengths with the lengths of said jaws, said ribs being semi-cylindrical in cross-section and flush with the leading longitudinal edges of the jaws.

4. Hysterectomy forceps for in toto removal of the human uterus and cervix by excision com-

prising a pair of crossed pivotally connected levers having handles and reach arms, substantially rectangular smooth-faced plates mounted on the respective forward ends of said reach arms, said plates, conjointly considered, being in opposition to each other and being substantially rectangular in shape and providing jaws, one jaw being substantially semi-cylindrical and the other jaw approximately quadrantal, said semi-cylindrical jaw being of a length greater than the length of said quadrantal jaw and said jaws thus providing a substantially ovoid clamp, the inner smooth faces of the respective plates being provided with longitudinally spaced cervix piercing prongs, the forward edges of the respective jaws being uninterruptedly smooth from end to end and providing guides against which a scalpel may be firmly held and guided.

5. Hysterectomy forceps for in toto removal of the human uterus and cervix by excision comprising a pair of crossed pivotally connected levers having handles and reach arms, and means on the reach arms for closing, holding, and manipulating the cervix in a manner to establish a predetermined position of the cervix preparatory to making the incision with a scalpel, to reduce the operative time and without serious injury to related anatomical structures, said means being in the form of clamping jaws having beaded straight edges to assist the surgeon in feeling the exact locale of the jaws, and to mark the exact area of incision and to shield the path of movement of the scalpel so that the latter will steer clear of vulnerable ureters and adjacent anatomy.

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