

Nov. 14, 1933.

I. WILLS

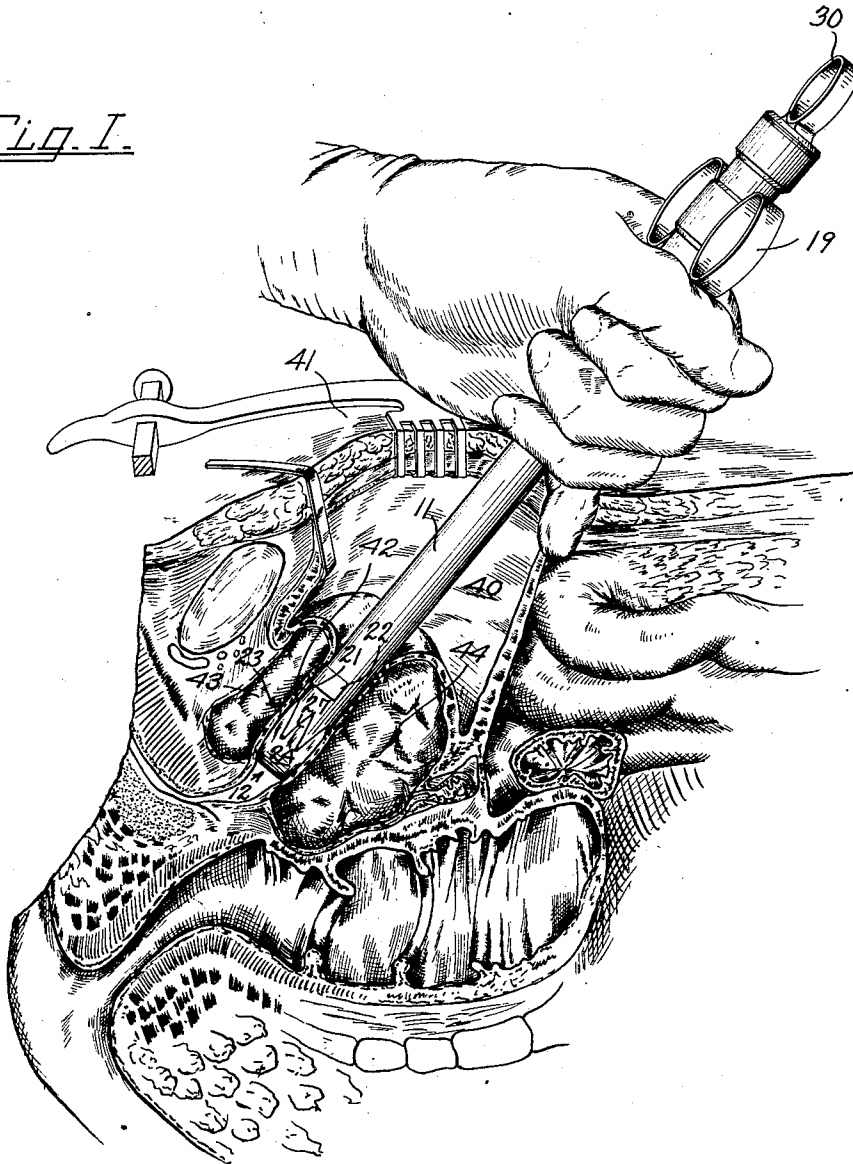
1,934,900

SURGICAL INSTRUMENT

Filed March 17, 1932

2 Sheets-Sheet 1

Fig. 1.



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2 Sheets-Sheet 2

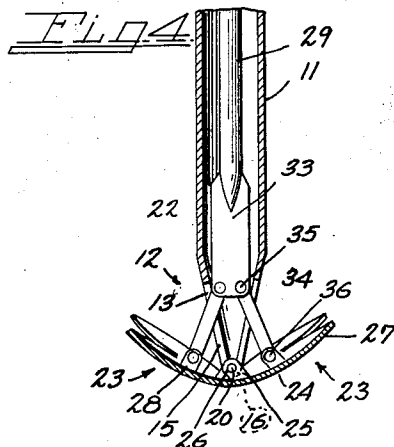
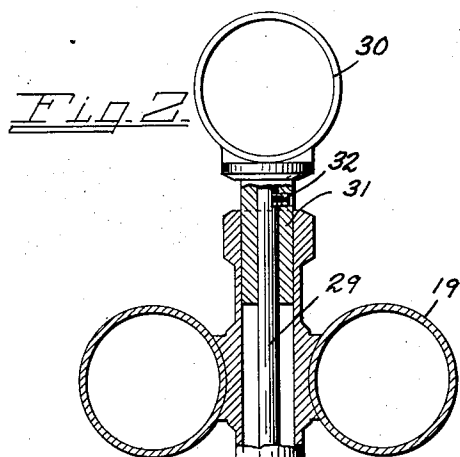


Fig. 3.

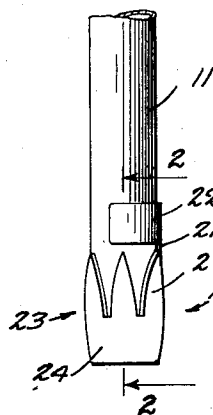


Fig. 5.

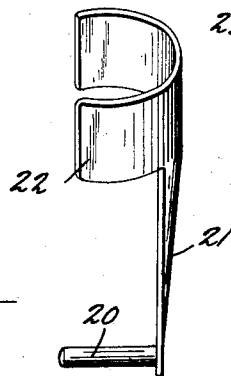
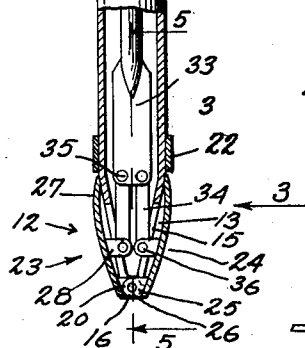
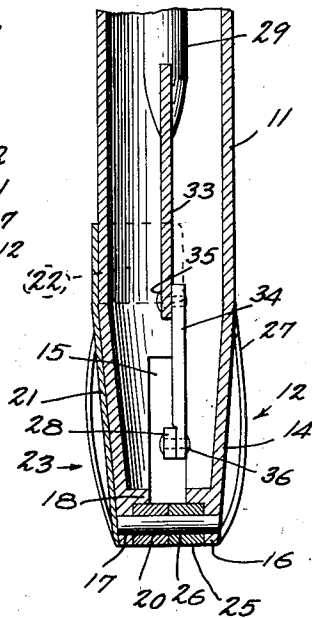


Fig. 6.

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UNITED STATES PATENT OFFICE

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SURGICAL INSTRUMENT

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Application March 17, 1932. Serial No. 599,467

13 Claims. (Cl. 128—311)

My invention relates to a surgical instrument used in prostatectomy. With my instrument the lateral lobes of the prostate gland may be caught and engaged by such instrument and incisions made to remove the whole or parts of the gland.

An object and feature of my invention is an instrument which may be introduced through the incisions made in the bladder, the operating end of the instrument being passed downwardly and outwardly in the prostatic urethra.

A further object and feature of my invention is constructing the instrument in the form of a tube with a blunt point and such point having nested thereabout a plurality of jaws, thereby when the point of the instrument with the jaws is introduced through the bladder and into the prostatic urethra, this may be done with the jaws in their contracted position, the jaws conforming to the shape of the blunt nose or point of the instrument and allowing ready entrance and passage of the pointed instrument and the jaws.

Another object and feature of my invention relates to the mounting and construction of the jaws whereby when the instrument is properly in position the jaws may be expanded, that is, the points of the jaws spread apart so that they may engage the tissues of the lateral lobes of the prostate gland. Then the gland may be manipulated to facilitate the making of proper incisions to remove the whole or part of the gland.

Another detailed object and feature of my invention relates to the construction of the mounting of the jaws on the end of the instrument, these jaws being pivoted and having a readily removable pintle. This pintle is held in place by a split ring which encircles the tube of the instrument and allows the pintle to be inserted in ears formed on the pressed and blunted end of the tube.

In my invention I employ an elongated cylindrical tube for the body of the instrument. This is flattened at the ends and brought to somewhat of a flattened point, a portion of the flattened points being cut out on each side. Finger grip rings are provided on the outer end of the tube to facilitate handling. The pair of jaws are pivoted to the outer contracted blunt end of the tube by a pivot pin which is supported by a split ring extending around the tube beyond the jaws, this ring having an arm with a pintle secured thereto. There are two jaws and each jaw has a plurality of prongs, preferably 3. The jaws and the prongs are shaped to conform to the blunt end of the tube. An operating rod extends longitudinally inside of the tube and has a bear-

ing for sliding operation at the outer end of the tube. The inner end of the rod is provided with a pair of links which are pivotally connected to lugs secured to the inner face of the jaws. Therefore, in one position, with the operating rod pulled out, the jaws are brought to their closed position and, if desired, may be clamped in this position. By pressing inwardly on the operating rod, which is done by a finger grip ring on the end of the rod, the jaws are thrust outwardly on their pivot. However, when the jaws are in their outer position they form an obtuse angle to each other and can never extend into a plane or an angle equal to or greater than 180 degrees. When the jaws are in their outer position the prongs engage the lobes of the prostate gland.

A characteristic feature of my invention is that the jaws are pivoted directly at the point of the instrument and, therefore, open from the point and when in the folded position these jaws form a taper to facilitate an easy entrance of the point of the instrument.

My invention is illustrated in connection with the accompanying drawings, in which:

Fig. 1 may be considered as a sagittal section of the body, illustrating the incised bladder and the surgical instrument inserted in the urethra tube in position to engage the prostate gland;

Fig. 2 is an elevation of the instrument partly broken away, showing the jaws in their collapsed position in which the lower part may be considered as on the section 2—2 of Fig. 3 in the direction of the arrows;

Fig. 3 is a detailed side elevation of the jaws taken in the direction of the arrow 3 of Fig. 2;

Fig. 4 is a section of the lower end of the instrument similar to Fig. 2 with the jaws expanded;

Fig. 5 is a section on the line 5—5 of Fig. 2 in the direction of the arrows;

Fig. 6 is a perspective of the pintle and the pintle holder.

Referring first to the construction of the surgical instrument, this employs an elongated cylindrical tube 11. Such tube has a contracted point 12 which is formed by two main sides 13, which are tapered. The two edges 14 also have a slight taper. In the tapered point sides 13 there is a slot 15. A pair of ears 16 are formed on the tip end of the sides 14, which ears have perforations 17. A shoulder 18 is formed inwardly of the tip portion 16. A pair of finger grip rings 19 are attached to the upper part of the tube 11 on opposite sides.

The pintle pin 20 which fits in the perforation

17 in the ear 16 is fixedly attached to an arm 21. This arm is attached to a split or sectional ring 22, which ring is resilient and grips around the body of the tube 11.

5 The jaws 23 are each formed with a jaw face 24, each jaw having a single lug 25 formed at right angles to the face 24, each lug having a perforation 26 to accommodate the pintle pin. The jaws are illustrated as having a series of prongs 27, there being three illustrated for each jaw. The jaws have additional lugs 28.

10 The operating mechanism for the jaws comprises a sliding or operating rod 29 which extends through the tube 11. This is attached to a finger grip ring 30 by a collar 31 secured to the ring and a set screw 32 attaching the collar to the rod. At its lower end the rod has a flattened section 33, to which there are pivotally connected two links 34, each link having its own pivot 35. The lower end of each link is pivoted to a lug 28, as indicated by the pivot pin 36.

15 Having the disconnectible pintle allows ready dismantling of the jaws, as the pintles 36 for the links 34 may be made in the form of small screws. Therefore, the jaws may be readily dismantled and the operating rod 29 with the links 34 removed through the upper end of the tube 11, thus allowing the whole device to be readily sterilized. When the rod 29 is drawn outwardly, the jaws are held in their closed position, as illustrated in Fig. 2. When, however, the rod 29 is thrust inwardly with reference to the tube 11, the jaws are forced to their outer position shown in Fig. 4.

20 In the use of the instrument, which is indicated in Fig. 1, the bladder is designated by the numeral 40, the incision having been made and a retractor 41 is used to hold the incision open, the instrument with the jaws contracted is inserted through the incision and into the prostatic urethra 42. The jaws may then be expanded to engage the lateral lobes 43 and 44 of the prostate gland. The prongs of the jaws when expanded firmly engage these lobes so that the gland may be lifted with the instrument and an incision made to remove the complete gland. It will be noted that as the instrument is inserted with the jaws closed that an entrance may be made by the blunt end into the prostatic urethra and that there is no danger of injuring the plexus of veins.

25 Various changes may be made in the details of construction without departing from the spirit or scope of the invention as defined by the appended claims.

I claim:

30 1. A surgical instrument having a hand manipulated tube with a point flattened on at least two sides to form a taper, a pair of jaws having their bases pivotally mounted at the extreme end of the point of the tube, and prongs on the portion opposite the bases, an operating means for the jaws operating in the tube and adapted in one position to retain the jaws collapsed or retracted against the tapered portion of the point of the tube, said means in another position being adapted to force the prongs of the jaws outwardly for engagement with the object to be handled.

35 2. A surgical instrument having a tube with a point formed by a taper on two sides, said point having a pair of ears at the extreme tip of the point with a pintle extending therethrough, a pair of jaws having their bases pivoted to said pintle, the jaws having prongs, an operating means in the tube connected to the jaws and in one position being operative to retain the jaws in the retracted position conforming to the taper of the end of the

tube, said means being also operative to force the jaws into an expanded or outward position.

3. A surgical instrument as claimed in claim 2, said pintle being mounted on a removable device detachably connected to said tube.

4. A surgical instrument having a tube with a tapered point formed by converging the end of the tube on two sides to a wedge-shaped point, a pair of ears formed on the extreme end of the tube at the end of the point having a pintle extending therethrough, a pair of jaws, each mounted on the pintle by a device at the base of the jaw, the jaws having prongs extending away from the pintle, a reciprocating rod operating in the tube and having means to engage said jaws and in one position to hold the jaws in retracted position conforming substantially to the taper of the end of the tube and in another position said rod forcing the jaws extended with the prongs forced wide apart.

5. A surgical instrument as claimed in claim 4, each of the wedge-shaped sides of the point of the tube having slots therein and a link extended through each slot on the reciprocating tube to the back portion of the jaw.

6. A surgical instrument as claimed in claim 4, the pintle being removable and attached to a split ring, said ring being detachably connected to the tube.

7. A surgical instrument having a tube with one end having the sides flattened and formed into a wedge-shaped point, the opposite two sides of the tube being slightly tapered whereby the wedge of the tube is of slightly less diameter than the diameter of the tube, the point of the tube having a pair of ears with a pintle extending therethrough, a pair of jaws having their bases connected to the pintle and having prongs, each of the flattened sides of the point of the tube having a slot therethrough, an operating rod extending longitudinally of the tube and having a link connected to each jaw, said operating rod in one position retaining the jaws in their retracted or collapsed position conforming to the taper of the point of the tube and in another position causing the expanding or forcing out of the prongs of the jaws.

8. A surgical instrument as claimed in claim 7, the pintle being removable and being attached to a longitudinal arm, said arm extending along one of the sides of the tube which is slightly tapered, and having a split ring attached to the arm, the split ring being adapted to encircle said tube.

9. In a surgical instrument having an elongated tube with jaws mounted on a pintle, said pintle being removable and being attached to a split ring, said ring partly encircling said tube and being removable from the tube for removing the pintle.

10. A surgical instrument having a handle end with a tube connected thereto, a pair of jaws having prongs pivoted to the end of the tube opposite the handle, means operating in the handle to retain the jaws in their retracted position with the prongs pointed toward the handle end, the said retracting means being adapted to expand the jaws, and the prongs of the jaws extending laterally outwardly beyond the retracting and expanding means.

11. A surgical instrument having a tube with a handle at one end and a point on the other end, said point having an opening at opposite sides, a plurality of jaws, each having prongs, pivoted to the end; means operating in the tube to re-

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tain the jaws retracted and to expand the jaws, the said means having elements extending through the openings in the point, the jaws when retracted having the prongs pointing toward the handle end of the tube, and said jaws when expanded having the prongs extending laterally outwardly beyond the elements connected to the retracting and expanding means.

12. A surgical instrument having a hand manipulated operating tube having a handle at the outer end and a pointed inner end, a pair of jaws with prongs pivotally connected to the inner end, means to operate said jaws to retain them in the closed position with the prongs extending toward the handle end for insertion of the inner end, said jaws when closed or collapsed conforming somewhat to the shape of the pointed end of the tube, the means for holding the jaws in closed position being adapted to project or ex-

pand said jaws, the jaws when expanded extending laterally outwardly at an angle to the tube, and the prongs extending laterally outwardly beyond the operating means for the jaws.

13. A surgical instrument having a hand manipulated tube with a handle outer end and a point flattened on two sides at the inner end, jaws having end prongs pivotally connected to the inner end of the tube at the end of the point, an operating means for the jaws adapted in one position to retain the jaws in a retracted position conforming somewhat to the point of the tube, said means being adapted to expand or force the jaws apart, said prongs when retracted pointing toward the handle end and when expanded projecting laterally beyond the expanding means.

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