

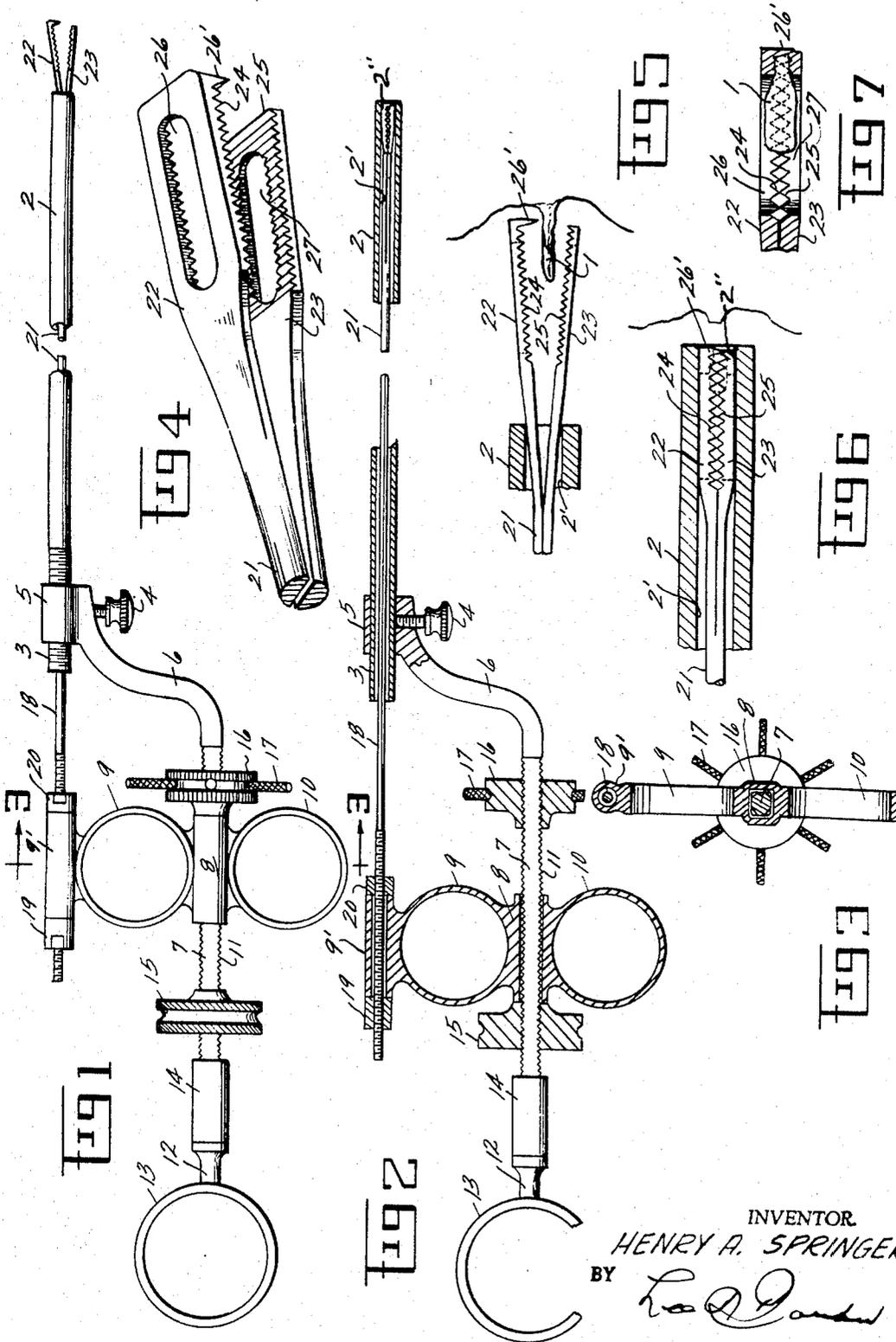
Oct. 8, 1968

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3,404,677

BIOPSY AND TISSUE REMOVING DEVICE

Filed July 8, 1965



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3,404,677
BIOPSY AND TISSUE REMOVING DEVICE
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Filed July 8, 1965, Ser. No. 470,521
2 Claims. (Cl. 128—2)

ABSTRACT OF THE DISCLOSURE

The present biopsy and tissue removing device is for removing tissue from a patient and employs a rod having a pair of normally divergent jaws of a resilient material which rod is slidable in a tube and includes finger gripping means for moving the jaws into the tube, which tube moves the jaws together for gripping, cutting and storing the tissue until the jaws are moved from the tube permitting the user to remove the severed tissue therefrom.

The invention relates to means for assisting a physician, surgeon, or other examining person, to obtain specimens or tissue from the lower bowel or intestine of a human being and also to remove excretions from the bowel and proctoscope during proctological and sigmoidoscopic examination, inspection and operation.

An important object of the invention is to provide simple, efficient and practical means to enable a physician or surgeon, with minimum discomfort to a patient, to cut off a tumor or part thereof, or other tissue from the bowel or intestine after a proctoscope has been inserted into the anus or rectum of the patient.

Other objects of the invention are to provide practical and economical means to assist a physician, surgeon or other user to cut off said tumor or other tissue obstacles and remove same from the bowel or intestines of the patient without crushing same; to provide means whereby a physician, surgeon and other person may obtain tissue for test purposes from recesses, the intestines, cavities and other generally inaccessible locations in body channel, without crushing or otherwise deteriorating same with minimum effort, and with the least discomfort to the patient; and to provide means to assist said physician or surgeon to obtain a specimen of said tissue or remove a foreign growth, as a tumor, with minimum physical pain and discomfort to said patient.

Further and other objects and details of the invention, will be apparent from a study and reading of the accompanying specification, claims, and drawings.

The invention consists in the combination of the elements, arrangements of parts and in the details of the construction, as hereinafter claimed.

In the drawings:

FIG. 1 is a side elevational view of the invention, with parts broken away;

FIG. 2 is a longitudinal vertical section of the invention;

FIG. 3 is a section taken on line 3—3 in FIG. 1;

FIG. 4 is a perspective view of the jaws;

FIG. 5 is a side elevation view of the jaws, with human tissue therein, and showing the horizontal tube in section;

FIG. 6 is a vertical section of the tube with the jaws in rearward and closed position; and

FIG. 7 is a section of the jaws in closed position and with a piece of human tissue therein.

In the preferred construction of the invention, I provide the outer longitudinal tube 2 having a hole 2' therein and having threaded to its rear end 3, and fixed thereto as by the thumb screw 4, the clamp 5 having integrally formed with its lower side the arm 6 which is curved downwardly and rearwardly. To the lower end of the arm 6 is integrally connected the longitudinal horizontal shaft 7 which ex-

tends rearwardly through the hollow or tubular support 8, having integrally connected with its upper and lower sides, respectively, the pair of finger rings 9 and 10, for purposes hereinafter described. The support 8 is slidable on the shaft 7 which has external threads 11 thereon.

Threaded to the rear end of the shaft 7 is the nipple 12 having its rear end suitably fixed to the thumb ring 13. The front end of the nipple contacts the cylinder 14, slidable on the shaft 7. Threaded to the shaft 7 is the circular nut 15 positioned between the cylinder 14 and the support 8. Threaded to the front end of the shaft 7 is the nut 16 having fixed to its rim the spaced apart outwardly extending spokes 17 manually operative to rotate the nut 16 on the shaft 7. The nuts 15 and 16 are manually positioned on the shaft 7 to properly limit the rearward and forward slidable movement of the support 8 on the shaft 7.

Slidable in the outer tube 2 is the longitudinal inner rod or shaft 18 having the spaced apart nipples 19 and 20 threaded to the rod rear end. Between the nipples 19 and 20 is the barrel 9' slidable on the shaft 18. The barrel 9' is integrally connected with the upper side of the finger ring 9.

The front end 21 of the inner rod 18 is split forming normally the spaced apart upper jaw 22 and lower jaw 23. The rod 18 is formed from spring material, as spring steel, whereby when the jaws are forced in contact with each other, as shown in FIG. 2, the jaws automatically move in spaced apart positions, as shown in FIG. 4, when said force is inoperative.

Formed on the inner surfaces and at the front ends of the jaws, are the teeth 24 and 25, respectfully. The upper jaw 22 is longer than the lower jaw and protrudes forwardly of the jaw 22. Integrally formed on the front end of the jaw 22 is the cutter 26'. When the jaws are in closed positions and contact each other, as shown in FIGS. 2, 6 and 7 the cutter contacts and also overlaps the outer end-edge of the lower jaw 23, and the teeth 24 and 25 contact each other, as shown in FIGS. 2, 6 and 7.

Formed in the upper and lower jaws 22 and 23, respectively, are the holes, spaces or apertures 26 and 27 whose sidewalls are aligned when the jaws are in closed positions.

The operation of the invention is substantially, as follows: Normally the various parts of the invention are in the positions shown in FIG. 1, and with the jaws 22 and 23 extending outwardly of the front end of the tube 2, and in open position.

The usual proctoscope (not shown) is inserted into the rectum (not shown) of an individual or patient whose lower bowel or intestine is to be inspected, examined or otherwise operated on. By introduction of suitable illumination in the proctoscope the physician, user or surgeon can look through the proctoscope and inspect the lower bowel of the patient. If the user sees human tissue, a tumor or a growth 1 in the bowel he may want an uncrushed sample piece of it for future inspection and test purposes, under which circumstances he causes the open jaws to contact and receive therebetween a piece of human tissue or tumor is shown in FIG. 5. Then he inserts his two fingers into the rings 9 and 10 and also he inserts his thumb into the thumb ring 13. Then he manually forces the rings 9 and 10 rearwardly toward the ring 13 thereby allowing the support 8 to slide on the shaft 7 and at the same time he manually moves the invention forwardly to keep the tissue or tumor 1 in the position shown in FIG. 5. Thus he causes the inner rod 18 to move rearwardly in the outer tube 2 until the walls 2' on the front end of the inner tube contact the spaced apart jaws 22 and 23, as shown in FIG. 5. Further manual movement of the shaft 7 rearwardly causes the walls 2' to force the jaws toward each other and causes the cutter 26' to move to-

ward the front end of the jaw 23 thereby cutting off a piece of the human tissue 1. A portion of the human tissue remains in the holes 26 and 27 wherein it will remain intact and uncrushed.

When the surgeon, physician or other operator, manually forces the finger rings 9 and 10 forwardly, and from the thumb ring 13, to the position shown in FIG. 1 the jaws spring from contact with each other and the cut-off tissue or tumor 1, or part thereof, which remains in its normal physical condition, not crushed; not mutilated; and not deteriorated, may be manually removed from the holes or apertures 26 and 27, for future examination under a microscope, and for other test purposes.

From experience and practical usage of the invention it is my belief that the form of the invention shown in the drawings, and referred to and described in the above description is the preferred embodiment. However, I realize that the conditions concurrent with the adoption and utilization of the invention will necessarily vary. Therefore, I desire to state that various changes in the details of the invention may be resorted to, when required, without sacrificing any of the advantages of the invention, as defined in the claims.

What I claim as new and desire to secure by Letters Patent is:

1. A biopsy and tissue removing device comprising a tube having a bore open at both ends, a rod of spring steel slideably positioned in said tube bore and having a pair of longitudinally extending superposed jaws provided in one end portion of said rod, said jaws having corresponding apertures therein, opposing teeth and one jaw having a cutter capable of overlapping an end of the other of said jaws, said jaws normally diverging from one another through the spring material of said rod when not confined in said tube bore and having said teeth in contact when positioned in said tube bore, an arm attached

at one end to said tube, a ring carried by the other end of said arm, a tubular support slideably mounted on said arm, a barrel connected to said tubular support and adjustably mounted on the other end of said rod, rings carried by said tubular support, and manually operable means carried by said arm for moving said tubular support along said arm whereby said rod jaws can be moved into and out of said tube bore by manually moving said tubular support rings relative to said arm ring or by operating said manually operable means for engaging, cutting and removing tissue.

2. A biopsy and tissue removing device as claimed in claim 1 wherein said means includes threads on said arm, a nut in threaded engagement with said arm on one side of said tubular support, a second nut in threaded engagement with said arm on the other side of said tubular support and said second nut having spokes extending therefrom.

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