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2,437,329

SURGICAL INSTRUMENT FOR CURÉTTING

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Fig. 1.

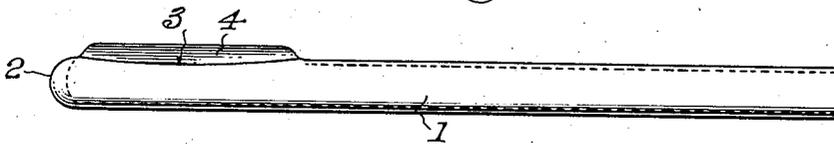


Fig. 2.

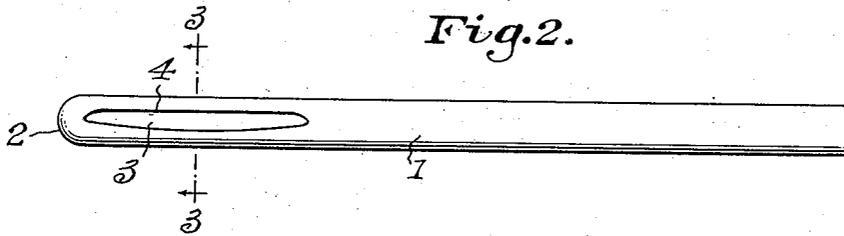
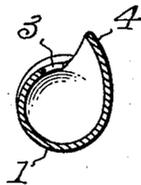


Fig. 3.



Fig. 4.



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# UNITED STATES PATENT OFFICE

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## SURGICAL INSTRUMENT FOR CURETTING

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to the United States of America, as represented  
by the Secretary of War

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3 Claims. (Cl. 128—304)

**1**  
This invention relates to surgical instruments and more particularly to collection devices for procuring specimens of bacteria located in body cavities.

Heretofore, it has been necessary to rely upon normal evacuation process of the body or the use of swabs to obtain specimens of bacteria from body cavities. The normal evacuation method has been found to be unsatisfactory since certain types of bacteria are firmly lodged on the mucosal surfaces of body cavities and are not detached and carried along by the substance evacuated. The use of swabs is also undesirable since devices of this character encounter and collect foreign substances and, hence, do not provide representative samples. Furthermore, such devices are uncomfortable to the patient and, finally, are impractical due to the difficulty of recovering the materials deposited thereon.

It is the principal object of this invention to provide a simple, inexpensive collection device for obtaining specimens of bacteria from the mucosal surfaces of body cavities.

Another object of this invention is to provide a collection device for obtaining specimens of bacteria from body cavities from which the specimen may be recovered efficiently and without difficulty.

Still another object of this invention is to provide a collection device for obtaining specimens of bacteria from body cavities which may be employed safely and without discomfort to the patient.

A further object of this invention is to provide a device of the character described which is adapted to obtain, from body cavities, representative specimens of bacteria relatively free of foreign substances encountered in such cavities.

The foregoing and other objects will be apparent from the following description of the invention and the accompanying drawings wherein:

Figure 1 is a side elevational view of the collection device;

Figure 2 is a top plan view thereof;

Figure 3 is an end view in cross section taken along line 3—3 of Figure 2; and

Figure 4 is a cross sectional view of a modified form of the invention.

Referring to the drawings specifically, the collection device consists of a tube 1 formed of hard glass such as "Pyrex" or any other strong material capable of withstanding repeated sterilization operations. The length of the tube 1 is preferably about six inches and the outer diameter thereof from 7 to 10 mm. One extremity of the

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tube 1 is closed to form a smooth rounded end 2 while the remaining extremity of the tube is open. A longitudinal opening 3 is formed in the wall of the tube 1 which begins approximately at the point of intersection of the curved end 2 and the side wall of the tube and extends for from one to two inches in length. The width of the longitudinal opening 3 is preferably from one-eighth to one-quarter inch. One lip of the longitudinal opening 3 is everted to form a curetting member 4. The radius of the everted portion of the tube 1 is approximately one-eighth inch greater than the radius of the tube as a whole. Also, the other lip of the longitudinal opening 3 may be depressed so that the radius thereof is less than the radius of the tube as a whole as shown in Figure 4. The foregoing collection device may be stored in any suitable container capable of maintaining the sterile condition of the instrument.

The collection devices constructed according to this invention are safe to use and do not cause the patient any discomfort because of the smooth contours provided which are free of protruding portions. Thus the smooth rounded end 2 of the tube 1 reduces the danger of puncturing any membranes. This is enhanced by the curved ends of the everted portion 4 where this portion joins the wall of the tube 1. The longitudinal opening 3 and the open end of the tube 1 are connected by the lumen of the tube, thus forming a conduit through which a fluid may be flushed to remove the specimen. This not only facilitates removal of the specimen from the tube but also permits ready access of sterilizing agents to the internal surfaces of the instrument.

The collection tubes according to this invention are susceptible of a number of uses. One such application is in the collection of fecal matter for bacteriologic and chemical examinations in connection with investigations regarding bacillary dysentery. The bacteria concerned in such investigations are lodged on the mucosal surfaces of the intestine and normally are not detached and carried by fecal matter passing therethrough. In order to obtain specimens of the bacteria a sterilized collection tube according to this invention may be lightly coated with a sterile lubricant and passed through the anal canal into the rectum. The tube is pressed against the mucosal surface of the rectum and then rotated on its longitudinal axis. The everted portion 4 of the tube 1 performs a curetting action on the mucosal surface and carries the fecal matter and bacteria

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lodged thereon through the longitudinal opening 3 into the lumen of the tube. The tube may then be removed and the specimen recovered through both the longitudinal opening 3 and the open end of the tube 1 without difficulty.

Other applications of the principles of the present invention will be readily apparent to those skilled in the art. All such variations, modifications and extensions of the principles of the present invention are to be understood as being embraced within the scope of the appended claims.

Having thus described my invention, what I claim as new and wish to secure by Letters Patent is:

1. A surgical instrument adapted for collecting specimens of bacteria from the surfaces of a body cavity comprising, a tube having a closed end and an open end, said tube being provided with a longitudinal opening adjacent said closed end and provided with an everted edge, and a curetting member formed on the everted longitudinal edge of said tube adjacent said longitudinal opening, the open end of said tube and the longitudinal opening in said tube being in communication with the lumen of said tube to provide a continuous passage therethrough.

2. A surgical instrument adapted for collecting specimens of bacteria from the surfaces of a body cavity, comprising a tube having a closed end, and being provided with an opening adjacent

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to the closed end, the opening having longitudinal edges, one of the edges being formed as a curetting member on a portion of the tube having a radius of curvature greater than the radius of the tube, and another edge bordering a portion of the tube having a radius of curvature less than the radius of the tube.

3. A surgical instrument adapted for collecting specimens of bacteria from the surfaces of a body cavity, comprising a tube having a closed end, and provided with a longitudinal opening adjacent to the closed end, one edge of said longitudinal opening being everted beyond the wall of the tube, and the opposite edge of the longitudinal opening being depressed centrally from the wall of the tube, and a curetting member formed on the everted edge of the longitudinal opening.

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