

[54] **UTERINE ASPIRATING CURETTE**
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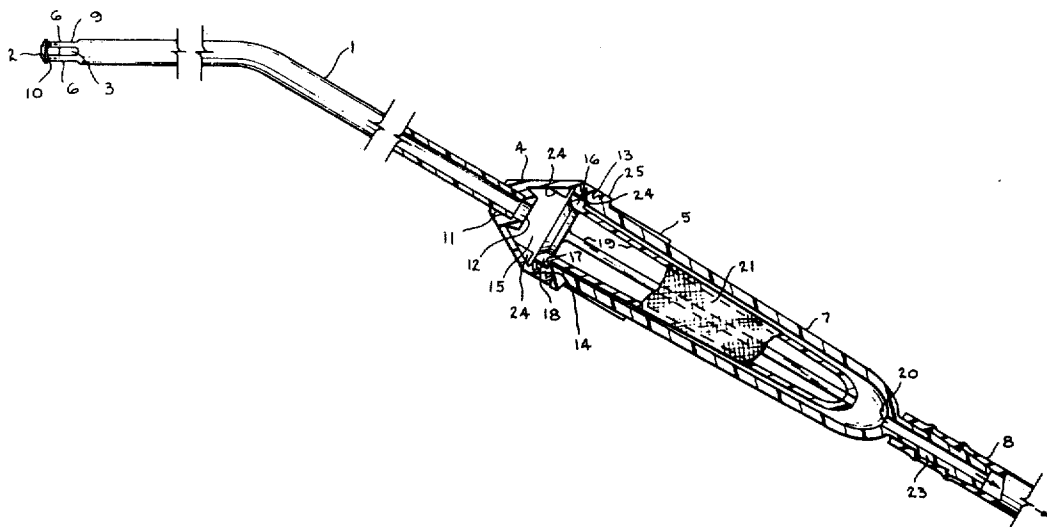
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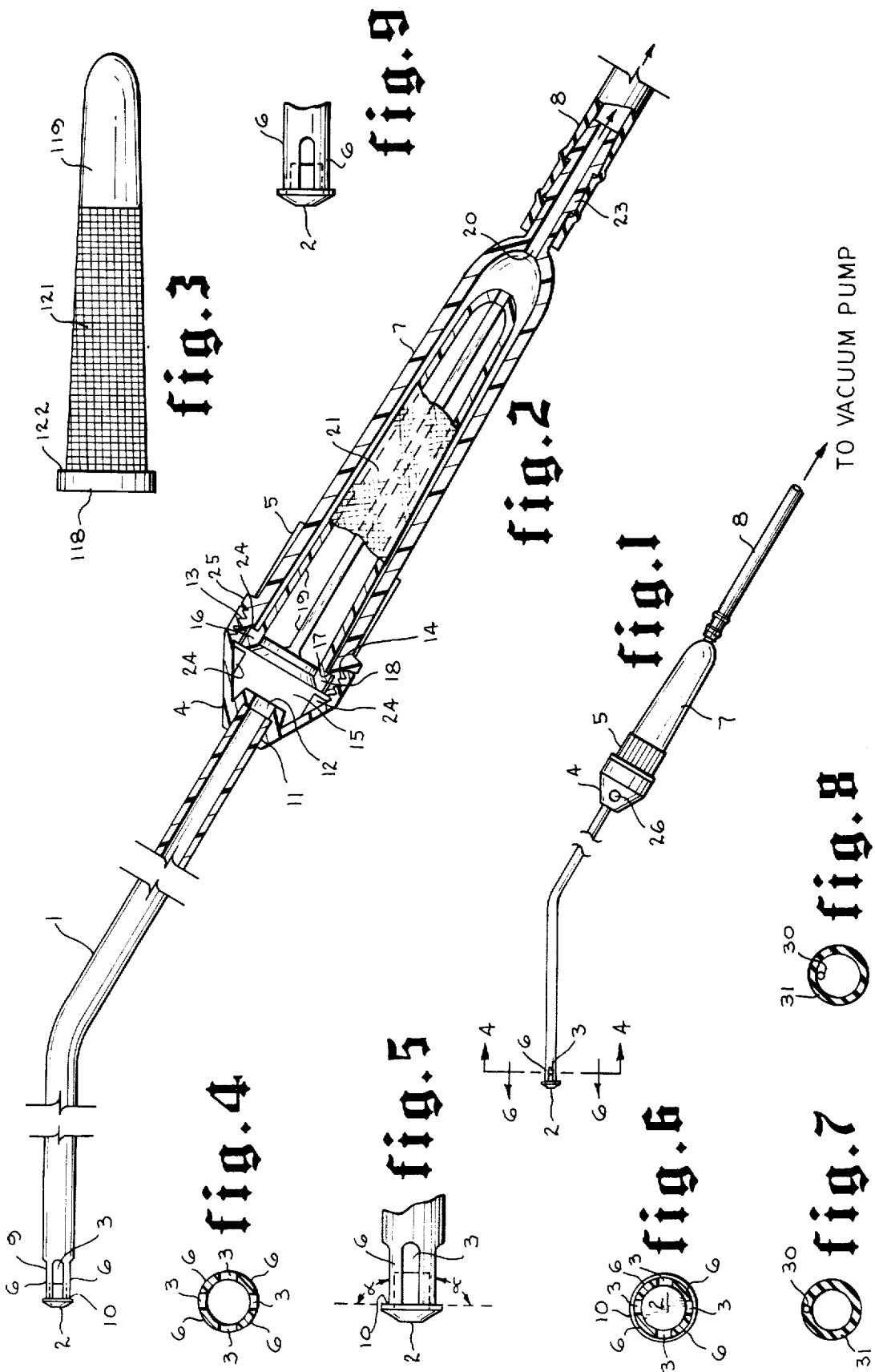
[57] **ABSTRACT**

A uterine aspirating curette which has an effective 360° contact with the uterus inner surface in use so that rotation of the curette in order to scrape and aspirate the entire surface is not required and a removable specimen collection basket mounted in the handle of the device in the line of suction.

11 Claims, 9 Drawing Figures

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UTERINE ASPIRATING CURETTE

BACKGROUND OF THE INVENTION

The present invention relates to a surgical device, more particularly it relates to an aspirating curette for inner uterine use. Prior uterine curettes usually required a rotational motion in addition to rectilinear motion in order to scrape the uterus surfaces. This additional movement increases the degree of trauma experienced by the patient during the surgical procedure. Also the specimen recovery for pathological examination has been difficult using prior art devices.

It is an advantage of the present invention that rotation of the device in use is unnecessary to achieve scraping contact with the entire uterine surface and removal of material attached thereto. It is a further advantage that the patient is subjected to less trauma with the present device than prior devices in the same procedure. It is a further feature of the present invention that specimen may be removed from the uterus surface without dilation of the cervix. It is a further advantage that specimens removed by aspiration from the uterus are recovered for pathological examination. These and other advantages and features of the present invention will become apparent from the following discussion and from viewing the drawing.

SUMMARY OF THE INVENTION

The present invention is a uterine aspirating curette comprising a tube attachable to a suction means, a plurality of spaced apart members extending linearly from one end of said tube, and a tip attached to said spaced apart members. The tip has a blunted surface, for example a dome shape projecting away from the tube and preferably overhanging the spaced members which extend from the end of the tube. The projection forms a lip which provides a scraper for dislodging specimens adhered to the inner surface for the uterus contacting the curette. The tip and tube have a substantially round cross-section to conform anatomically with the vaginal channel, cervix and uterus in which the device is employed. The underside of the tip which is attached to the spaced members is substantially flat.

The surface attached to the spaced members may be at approximately 90° thereto, although the angle could be from say 60° to 120°. The angle (FIG. 5) of under surface of the tip is relevant in so far as the angle of the under surface at the point it contacts the upper surface is of such a nature that the rim or outer edge of the tip will serve as a scraper. At angles greater than 120° the configuration of the rim is generally too blunt and hence the scraping action is diminished. Under surfaces angled at less than 60° may result in a very sharp edge on the tip.

Another preferred feature of the device is having the diameter of the tip substantially the same as the diameter of the tube. Another preferred feature is having a tube with approximately a 25° to 35° angle located adjacent the end of the tube inserted into the uterus. This is an anatomical configuration which facilitates the insertion of the device.

Another feature of the present invention is the location of a removable specimen collection basket in a handle portion of the device between the aspirator tip and the suction.

The following brief description of the drawings and the detailed description of the invention will make the substance of the invention clear, where possible similar parts have been identified with the same indicia in the figures. Standard and conventional and obvious modifications or changes within the routine skill are within the scope of invention, although no particular mention thereof may have been made.

DRAWINGS

FIG. 1 is an isomeric view of the device of the present invention.

FIG. 2 is a partial cross sectional view of the present device.

FIG. 3 is a detail of a specimen collection basket.

FIG. 4 is a cross section taken along line 4—4 of FIG. 1.

FIG. 5 is a detail view of the aspirating tip.

FIG. 6 is a cross section taken along line 6—6 of FIG. 1.

FIG. 7 is a cross section of a flexible tube.

FIG. 8 is a cross section of an alternate cross section of a flexible tube.

FIG. 9 is a view of an alternate configuration of a tip.

DETAILED DESCRIPTION OF THE INVENTION

Referring to FIG. 1 the uterine aspirating curette is shown in an isomeric view as having an angularly bent tube member 1 attached to a base 4 having a suction control opening 26 thereon and mounted to handle 7. Projecting outward along the axis of the tube 1 is a series of spaced apart members 6, onto which is attached the tip 2 thereby creating a plurality of slots or openings adjacent to the tip 2. Tip 2 closes off the end of the tube. The device is attached to a suction such as a vacuum pump (not shown) by a flexible tube 8. Aspiration is achieved through slots 3. An aid to gripping the handle is provided with surface 5. This is particularly useful when the base and handle are disassembled for removal of a collected specimen as described herein below.

The invention can be better understood from FIG. 2. The tube 1 is shown as fixedly mounted in recess 11 in base 4. The aspirating end of device can be seen in more detail in FIG. 5. The tip 2 can be seen to have a rounded configuration to provide for safe entry and manipulation within the uterus. There are slots 3 which can be formed by removing portions of tube 1 adjacent to the end. The portions of the tube remaining form the members 6. The slots are arranged around the tube to provide aspiration on an effective 360°. Referring to FIG. 4 there can be seen to be 4 slots 3. Preferably there would be at least two and more preferably three or four slots around the tube. Because of the relatively small diameter of this uterine device, there will not be more than four slots, because such slots would tend to be too small to allow material from the uterus wall to pass through. The members 6 are seen to be extensions of tube 1 and have the same outside diameter thereas.

The tip 2 is of substantially the same diameter as the outside diameter of tube 1. The shoulder 9 on the tube 1 is thus in line with the edge of tip 2. Both shoulder 9 and shoulder 10 on tip 2 form scraping surfaces. The uterus would be distended by the tube and would tend to press in against the tube thereby allowing the scraping surfaces to break loose any material adhered to the inner wall of the uterus. The tube 1 has a single angle

along its length which is anatomically designed to facilitate its use.

The base 4 is removably attached to hollow handle 7 by threads 13 and 14 located respectively thereon. Tube 1 communicates with chamber 15 via passage 12. Located in chamber 15, projecting from the inner wall of base 4 are fins 24 of which there are two to several, equally spaced about base 4. The function served by fins 24 could just as well be served by an annular member 24. The member 24 is spaced slightly above handle 7 when the base is completely seated down onto the handle 7 against the annular ridge 25.

Seated within handle 7 and removable therefrom is basket 16. The basket 16 consists of annular rim 18, ribs 19 attached to the rim 18, said ribs being joined at one end to form a bottom. Rim 18 has a ledge 22 which is seated against shoulder 17 in handle 7. The member(s) 24 serve to retain basket 16 in place allowing only slight movement of the basket if the handle is inverted or joggled. The fins or members 24 may be seated against the basket rim 18 to prevent any movement of the basket.

At the end of the handle 7 opposite the tube 1 a suction egress conduit is provided. The conduit has annular ridges 23 for securing a resilient tube 8 thereon.

In FIG. 2 a partial section of gauze 21 is shown in place within basket 16, seated against ribs 19. The gauze would, in use, line the entire basket and provide the surface, on which any specimen material recovered from the uterus is collected. The entire curette device, i.e., tube, base, handle and basket or just the basket with the specimen, is then sent to the laboratory for pathological examination.

Referring to FIG. 3, there is an alternate form of basket shown comprising a rim 118 having a ledge 122 and attached to the rim a mesh 121 forming an enclosed area having a frustro conical cross section and attached to said mesh 121 opposite said rim 118, a closed cup 119.

There are a number of obvious variations in the present device, some of which have been noted such as the basket, the basket retaining member, and slots in the aspirating tip. Some other obvious modifications are location of the suction egress 20 at some point other than directly opposed to tube 1, change in the manner of securing tube 8 to the device and the like.

The present device may be manufactured from stainless steel for a long lived reusable device or lends itself to easy fabrication from polymeric materials to provide a one use disposable device. In either event it is intended to provide for a non-traumatic procedure.

In use the device is inserted into the uterus by a physician in a position 180° from that shown in FIGS. 1 and 2, thereby conforming to the patients anatomy. During the insertion the suction control opening 26 is left open thus providing the path of least resistance to suction. After insertion of the tip 2 into the uterus the physician closes the opening 26 with the thumb thereby creating the suction through slots 6. The device is moved generally in a rectilinear motion to scrape the walls of the uterus. The specimen, if any, is then drawn through slots 6 into tube 1, hence into basket 16. The entire device can be made of substantially clear polymeric material to aid the physician in determining when to terminate the procedure. Upon terminating the procedure the opening 26 is again released and the tube removed from the patient. The alternate basket shown in FIG. 3

is particularly useful if the specimen is small or of a very thin consistency. The velocity of the specimen will carry it into the cup 119 while the suction passes through mesh 121.

In FIG. 5 the aspirating end of the device is shown in more detail. The angle α should be between 60° and 120°. The angle α is formed between tip 2 and the opening 3 by shoulder 10. The 90° angle shown in the figures is considered a preferred embodiment.

In FIG. 6 the members 6 are shown at the periphery of tip 2.

In one embodiment shown in FIG. 7 the tube 31 is made of a flexible material. In order to provide the anatomical shape, which may vary, i.e., as in the case of an inverted uterus, a bendable wire member 30 which is embedded in the wall of tube 31. FIG. 8 shows an alternate configuration wherein the wire 30 is attached on either or both ends at the tip or base (not shown). This embodiment allows a wider use of the present device. The desired anatomical configuration is determined by the physician and the tube 31 and hence the wire 30 is bent to that shape.

The invention claimed is:

1. A uterine aspirating curette comprising a tube closed on one end by a tip and having a plurality of equally spaced openings about the circumference thereof, juxtaposed to said tip, said tip having substantially the same outside diameter of said tube adjacent to said openings said tube being fixedly attached to a base, said base having a chamber therein, said tube communicating with said chamber by a passage, a hollow handle, said base being removably mounted thereon and said chamber communicating with said hollow handle, said handle being adapted for manipulating said curette in use, a substantially porous basket for receiving an aspirated specimen, said basket being removably mounted in said handle, juxtaposed to said chamber and in alignment with said tube, said basket having an enclosed non-porous end forming a cup, and a means for attaching said handle to a vacuum source.
2. The uterine aspirating curette according to claim 1 wherein there are four openings.
3. The uterine aspirating curette according to claim 1 wherein said tube has a substantially uniform outside diameter.
4. The uterine aspirating curette according to claim 3 wherein said tip is blunt.
5. The uterine aspirating device according to claim 1 wherein said tip is dome shaped.
6. The uterine aspirating curette according to claim 1 wherein said tube and said means for attaching said handle to a vacuum source are at substantially opposite ends of said handle.
7. The uterine aspirating curette according to claim 1 wherein said basket is seated in place on a shoulder in said handle and is held from movement off of said shoulder by an element of said base.
8. The uterine aspirating curette according to claim 1 wherein said basket comprises a mesh.
9. The uterine aspirating curette according to claim 1 wherein said base is threaded onto said handle.
10. The uterine aspirating curette according to claim 1 wherein said tube is flexible and a bendable wire member is located along the length thereof.

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11. A uterine aspirating curette comprising an elongated handle having a passage therethrough, an inwardly projecting shoulder adjacent one end thereof, a substantially porous basket having an annular rim about an opening, said rim being seated on said shoulder, said basket extending along a portion of said passage in said handle, a base threadably engaged on said handle adjacent to said shoulder, a chamber within said base and communicating with said passage in said handle, a retaining member in said chamber, adjacent to

said basket rim, a tube fixedly mounted in said base and communicating by a passage with said chamber, said tube extending axially from said base and said engaged handle, said tube terminating in a plurality of spaced apart members extending linearly from said tube and a tip having a blunted surface projecting away from said tube attached to and over hanging said spaced members, and a conduit for suction egress located on said handle opposite said tube.

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