June 27, 1967 J. J. DE MARCO 3,327,702

BIOPSY KNIFE FOR CUTTING A CONICAL SPECIMEN

Original Filed Nov. 20, 1962

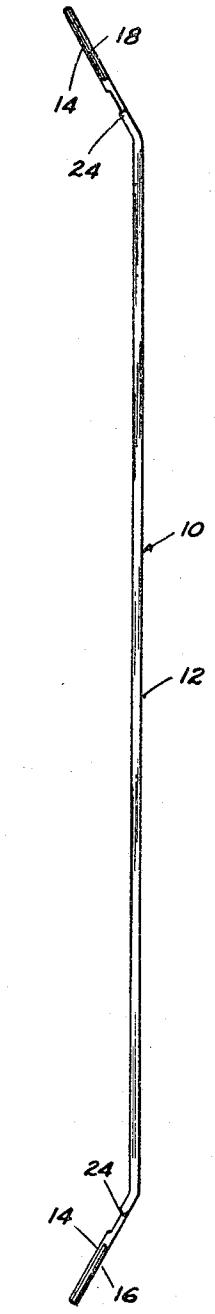


FIG. 6

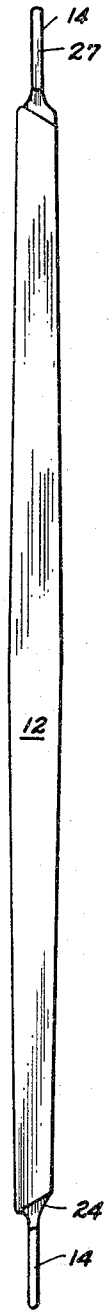


FIG. 5

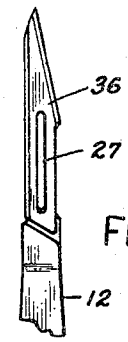


FIG. 2

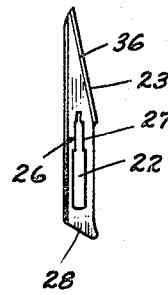


FIG. 1

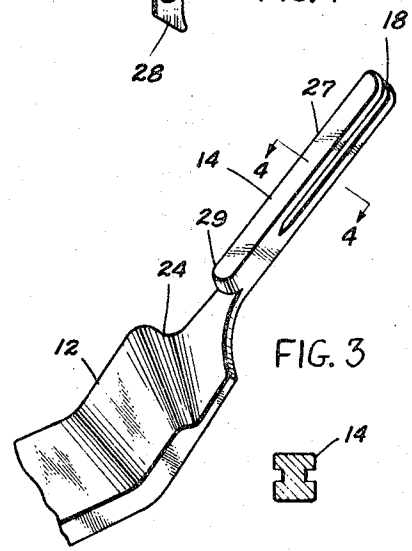


FIG. 3

FIG. 4

INVENTOR.
JOHN J. DE MARCO

BY

Charles L. Lovercheck
Attorney

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BIOPSY KNIFE FOR CUTTING A CONICAL SPECIMEN

John J. De Marco, 1840 S. Shore Drive, Erie, Pa. 16505

Original application Nov. 20, 1962, Ser. No. 238,977, now Patent No. 3,256,874, dated June 21, 1966. Divided and this application Mar. 24, 1966, Ser. No. 538,187
1 Claim. (Cl. 128—2)

This application is a division of patent application Ser. No. 238,977, filed Nov. 20, 1962, now patent 3,256,874.

The present invention relates to a tracheotome and, more particularly, to a biopsy knife for obtaining biopsies of the cervix of the uterus of human females.

The use of the normal straight scalpel or knife for obtaining biopsies of the cervix of the uterus has many disadvantages. Because of the location and approach to the cervix of the uterus, it is difficult to properly position a straight scalpel to obtain a biopsy. Also, great care must be taken that the cut is not too deep, for a hemorrhage may be caused. Thus, it is a difficult task to make a biopsy cut of uniform depth of representative tissue with a straight scalpel, particularly when operating on the cervix of the uterus through the small restricted area of the vagina.

In the use of biopsy knives presently available, it is necessary for a surgeon to cut half of the conical biopsy from the cervix of the uterus and then to change the position of his body in order to move his arm to the proper position for cutting the other half of the conical biopsy. This makes it inconvenient for the surgeon and, also, since his body is in an inconvenient position, lends the possibility of his making an error in the cut.

The present invention provides a knife handle which will hold any regular knife blade at each end. It holds the blade at approximately a thirty degree angle which automatically excises a cone of the cervix as it incises. This degree of angulation makes the instrument more maneuverable than a straight handle in the restricted space of the vaginal canal.

By having a blade at an angle at each end which goes in a different direction, the entire three hundred sixty degrees of the cervix is readily incised to yield a smooth, intact conical biopsy. One end of the handle with blade will easily incise one entire half of the cervix and, by changing to the outer end, the remaining half of the cervix is likewise incised, thereby obtaining the intact, smooth conical biopsy of the cervix. The handle is easily held in the middle by the surgeon and it permits the use of either end at either time by simply alternating one end or the other.

It is, accordingly, an object of the present invention to provide an improved biopsy knife.

Another object of the invention is to provide a biopsy knife which is shaped to permit ease of insertion and manipulation in the cervix of the uterus.

Yet another object of the invention is to provide a biopsy knife which cuts a specimen of a definite continuous conical shape from the uterus with a minimum of movement of the operating surgeon's body.

Still a further object of the invention is to provide a biopsy knife having a blade on each end thereof.

Still yet a further object of the invention is to provide a biopsy knife which is simple in construction, economical to manufacture, and simple and efficient to use.

With the above and other objects in view, the present invention consists of the combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings and more particularly pointed out in the appended claim, it being understood that

changes may be made in the form, size, proportions, and minor details of construction without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:

FIG. 1 is a side view of a single edged blade according to the invention;

FIG. 2 shows the blade mounted on a two ended handle such as shown in FIGS. 5 and 6.

FIG. 3 is an enlarged partial view of the handle without the blade thereon;

FIG. 4 is a cross sectional view taken on line 4—4 of FIG. 3;

FIG. 5 shows a double ended handle having both ends similar to the end shown in FIG. 3;

FIG. 6 is a side view of the handle shown in FIG. 5;

Now referring more particularly to the drawings, the embodiment of the invention incorporates the same type of knife holder on both ends of a single handle. A handle **12** has a knife receiving end indicated at **14**. The principal of the embodiment of the handle shown in FIG. 5 and 6 is double ended for use with a single edged blade.

The knife receiving ends **14** are of a conventional type except that they are disposed at an improved angle to the handle **12** at approximately thirty degrees. Prior handles have held their blades at a considerably greater or a considerably lesser angle for one reason or another.

A conventional groove **18** is received in an opening or hole **26** in the blade. That is, an enlarged portion **27** of the end **14** slips through an enlarged part **22** of the opening **26** and the material of the end **14** defining the groove **18** overlies the marginal portions defining the enlarged portion **27** of the opening. A shoulder **29** then rests against the inside of the enlarged part of the opening.

The knife receiving end **14** is disposed at an angle of approximately thirty degrees to the handle **12**. It has been discovered that an angle of approximately thirty degrees is a much more natural angle at which the knife may be held for a biopsy on the cervix and, therefore, a more precise operation can be performed.

The knife receiving end **14** has a shoulder **24** which rests against an end **28** of the knife **36**. The knife **36** has a single sharpened edge **23** and the opposite side thereof is dull. The dull edge is generally parallel to the center line of the handle and the sharpened or cutting edge is approximately thirty degrees to the center of the handle. This angular arrangement has been discovered to facilitate the use of the knife for the purpose intended as set forth herein.

The blades each have a point as indicated in the drawings. The double ended handle shown in FIGS. 5 and 6 has a knife on each end. With this double ended knife, a surgeon may cut half of the conical biopsy from the cervical canal of the uterus and then he may reverse the knife and cut the other other half of the conical biopsy without putting his body in an inconvenient and off balanced position for this operation. Therefore, the two knives on opposite ends of the biopsy knife cooperate to accomplish a unitary result in cutting a single biopsy without having the surgeon unbalance and inconvenience his position which might result in injury to the patient.

The foregoing specification sets forth the invention in its preferred practical forms but the structure shown is capable of modification within a range of equivalents without departing from the invention which is to be understood is broadly novel as is commensurate with the appended claim.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

A biopsy knife for cutting a conical shaped biopsy spec-

imen from the walls of the cervix comprising a handle,
a first thin blade supporting tip extending from a first end of said handle and,
a second blade supporting tip attached to a second end of said handle,
a first thin blade removably attached to said first blade supporting tip for cutting one-half of a biopsy specimen,
a second thin blade removably attached to said second blade supporting tip for cutting a second half of a biopsy specimen,
said blades having cutting edges,
said cutting edges being disposed on opposite sides of said handle from each other when blades are mounted on the handle,
said blades each being disposed in a separate plane from the other,

said handle being inclined laterally at an angle approximately thirty degrees from each of said planes,
said blades being disposed on the same side of said handle,
said blades each being elongated and having a point on the distal end thereof.

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RICHARD A. GAUDET, *Primary Examiner.*

W. E. KAMM, *Assistant Examiner.*