

[54] MEDICAL EXAMINING INSTRUMENT

[76] Inventor: **Bernard McDonald**, 18212 Pacific Coast Hwy., Malibu, Calif. 90265
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[56] **References Cited**
UNITED STATES PATENTS

3,532,088	10/1970	Fiore.....	128/18
3,470,872	10/1969	Grieshaber.....	128/17
3,349,764	10/1967	Edinger et al.	128/18
3,575,163	4/1971	Gaspar.....	128/17
3,664,330	5/1972	Deutsch.....	128/18

OTHER PUBLICATIONS

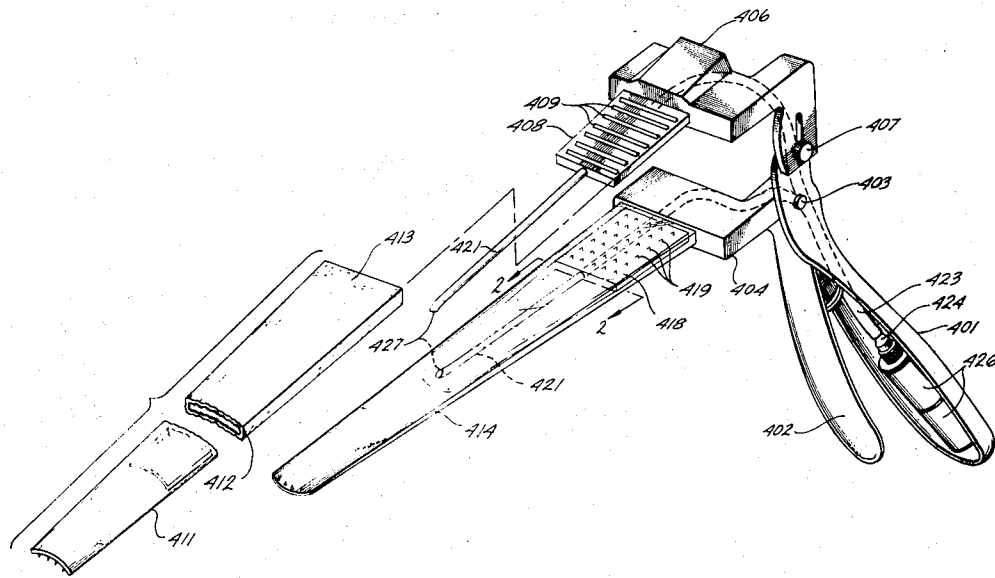
Medical & Surgical Review – February, 1970, page 35.

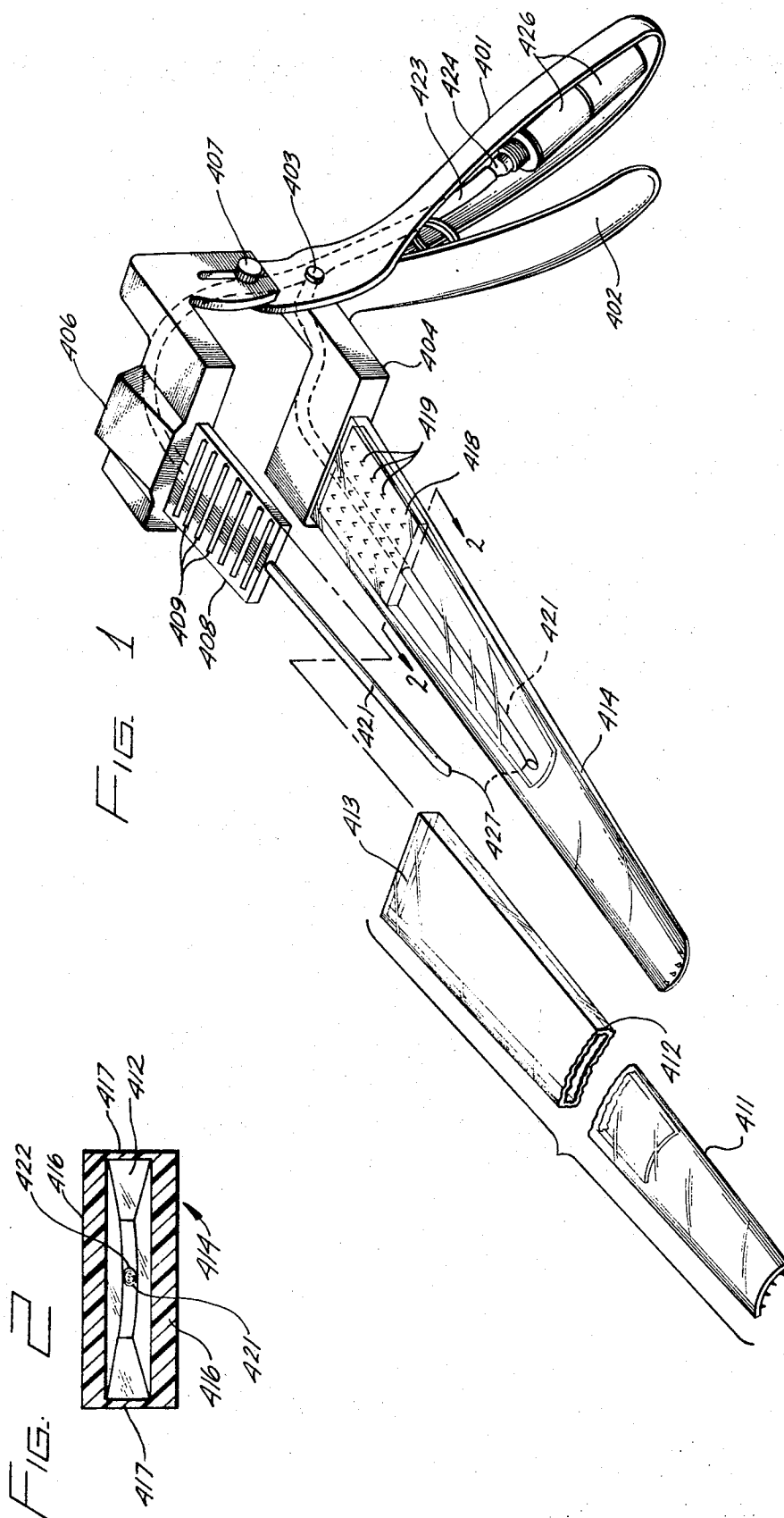
Primary Examiner—Lucie H. Laudenslager
Attorney—Edward H. Loveman

[57] **ABSTRACT**

A device for viewing the cervix and vaginal segment of a human uterus has a plurality of blades removably mounted on a holder. The blades are elongated transparent members and have an internal cavity closed near one end of the blade and open at the opposite end. The cavity is relatively wider in one direction and relatively narrower in another direction with the walls adjacent the narrower sides relatively weaker than the walls adjacent the wider sides.

6 Claims, 2 Drawing Figures





MEDICAL EXAMINING INSTRUMENT

In my co-pending application, Ser. No. 144,468, filed on May 18, 1971, there is disclosed a combined vaginal speculum and teculum instrument which is comprised of a handle, a hollow housing and a plurality of blades releasably secured to the housing and adapted to hold in spaced apart relationship the vaginal walls of a patient during a medical examination and additionally, securely engaging and grasping the outside of the cervix adjacent the cervico-vaginal fornix. This invention is concerned with providing an improved blade which has a frangible portion for manual breakage thereof after an examination or medical treatment, etc.

It is therefore a principal object of the present invention to provide an improved body cavity speculum blade.

It is a further object of the present invention to provide a body cavity speculum blade having frangible means for manual breakage thereof from an instrument after use.

These and other objects and many of the attendant advantages of this invention will be readily appreciated as the same becomes understood by reference to the following detailed description when considered in connection with the accompanying drawings in which:

FIG. 1 is a perspective view of a body cavity instrument with the novel blades;

FIG. 2 is a cross sectional view of the blade taken along line 2—2 of FIG. 1.

Referring now to the drawings wherein like reference characters designate like or corresponding parts throughout, there is illustrated in FIGS. 1 and 2 an instrument having a pair of handle elements 401 and 402 which are pivotally interconnected by a pin 403. The forward handle 402 is rigidly connected to a lower blade support bracket 404. The rearward handle 401 is adjustably connected to an upper support bracket 406 by a thumb screw 407 to permit adjustment as hereinabove described.

A rectangular, tapered tang 408 extends forwardly from the upper support bracket 406. At least one surface of the tang 408 is provided with tooth-like ridges 409 having a shallow angle ramp on a forward edge and a steep ramp on the rearward edge.

Exploded from the upper tang 408 in FIG. 1 is an upper blade 411 made of a transparent plastic material. Since the blade 411 is transparent an internal cavity 412 can be seen therein and is further seen in the cut-away section of the blade. The internal cavity is blind or closed towards the forward end of the blade 411 and has an open mouth 413 at its rearward end. As illustrated in this embodiment the blade near the mouth 413 is rectangular and so is the mouth of the cavity. The forward end of the blade is curved for use of the instrument within the body and it is therefore preferable that the forward end of the cavity also be curved to conform as is also seen in FIG. 2 which comprises a cross-section of a lower blade 414. If desired, the rearward portion of the blade and the mouth 413 can also be made with a curved profile and if this is done the tang 408 is also made curved to be complementary to the cavity 412.

When the blade 411 is placed on the rest of the instrument the mouth 413 of the cavity is slid over the tang 408 and across the ridges 409. Since the ridges are somewhat like teeth, they firmly engage the plastic

blade to prevent it from being removed under the forces normally encountered in a body examination. A particular advantage of the instrument is that the blades are inexpensive and disposable thereby eliminating any need for sterilization between uses. Since the ridges 409 hold the blades in place firmly, other means are provided for removing the blade from the tang 408. Thus as seen in the cross-section of FIG. 2, the two broader sides 416 of the blade are made relatively thick for strength and rigidity. The narrower side edges 417 are made relatively thin so as to be readily broken by hand. Thus, when one has completed use of the instrument it is only necessary to push the blade 411 to one side relative to the tang 408 whereupon one or both of the thinner sides 417 breaks away letting the blade drop from the instrument.

The lower blade 414 and upper blade 411 are preferably identical for ease in manufacture. A slight modification is also shown in FIG. 1 on the lower tang 418 forming a part of the lower blade support bracket 404. Instead of ridges as provided on the upper tang 408 a plurality of small nibs 419 protrude outwardly from the tang in order to engage the plastic blade and prevent its withdrawal from the end of the tang. Preferably the nibs 419 are asymmetrical somewhat like the teeth on a rasp to permit the blade to be inserted readily by hand and yet to inhibit withdrawal of the blade.

Protruding forwardly from the tangs 408 and 418 are similar fiber optic bundles 421. Preferably as seen in FIG. 2 the fiber optic bundle is surrounded by a relatively rigid, yet elastically flexible plastic sleeve 422. The sleeve serves to protect the fiber optic bundle from damage when a blade 411 or 414 is removed from the instrument since it can elastically deform to some extent. The cavity 412 within the blade is preferably kept relatively wide in the region surrounding the fiber optic bundle to permit it to be twisted to the side to break away the thin walls 417 without unduly encountering the fiber optic bundle.

The fiber optic bundle 421 has an end 423 within the hollow portion of the rear handle 401. This end is adjacent a high intensity light bulb 424 electrically connected to dry cell batteries 426 in a conventional manner. A switch (not shown) is provided near the upper portion of the rear handle 401 for easy thumb operation. The fiber optic bundle passes upwardly adjacent the handle 401 and forks into two bundles adjacent the blade support brackets and then the two forks pass through the center of the respective blade mounting tangs 408 and 418. The forward end 427 of each of the fiber optic bundles is preferably slightly curved relatively inwardly and cut off at a slight angle so that light from the bulb 424 passes through the bundle and is projected from the end 427 somewhat inwardly in a forwardly converging direction. Some of the light is transmitted directly through the transparent blades adjacent the end of the cavity therein and a portion is transmitted along the length of the blades to provide adequate illumination when the instrument is used.

The use of a hollow blade that fits on an extending member in the manner of a mortise and tenon is advantageous for ease of use and also for accommodation of fiber optics or similar lighting sources. The hollow disposable transparent plastic blade permits the lighting to be directed as desired by permanent fiber optics. If desired the tang may be appreciably longer and the fiber optics have only an end exposed for illumination. In

such an embodiment a more flexible blade may be used with more rigidity contributed by the tang. Such a long blade may be put on the tang in the manner of a sock or glove and may be removed by tearing away a deliberately weakened section. A strong string or wire may be embedded in the plastic to aid in cutting away the plastic.

Although limited examples of medical examining instruments have been described and illustrated herein many modifications and variations will be apparent to one skilled in the art. It is therefore to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

I claim:

1. A body cavity speculum blade comprising;
an elongated transparent plastic member including
an internal cavity closed nearer one end of said
blade and open at the opposite end;
said blade cavity being relatively wider in one direction and relatively narrower in another direction transverse to the length of said blade such that the walls adjacent the narrower sides are relatively weaker than the walls adjacent the wider sides.
2. A body cavity speculum blade as defined in claim 1 wherein the end of said blade having the closed end of said internal cavity, has a curved portion for use within the body cavity and the closed end of said blade

cavity is curved to conform to said curved blade portion.

3. A body cavity speculum blade as defined in claim 1 wherein said blade is curved and said blade cavity is similarly curved for use of said blade within the body cavity.

4. A body cavity speculum blade comprising;
an elongated body;
connecting means on one end of said body for temporarily connecting said blade to a speculum;
means on the other end of said body for engaging a body portion within the body cavity and applying a force thereto in a direction along the length of said blade; and
said connecting means further comprising a break-away body portion for releasing said connecting means.

5. A body cavity speculum blade as defined in claim 4 wherein said connecting means comprises an internal cavity closed nearer one end of said elongated body and open at the opposite end.

6. A body cavity speculum blade as defined in claim 4 wherein said body is formed of a transparent material and wherein said blade is curved and said blade cavity is similarly curved for use of said blade within the body cavity.

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