United States Patent [19]

Whitman

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[54] **ILLUMINATING ATTACHMENTS FOR VAGINAL SPECULUM**

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[52] **U.S. Cl.** **128/18,** 128/6

[51] **Int. Cl.** **A61b 1/30,** A61b 1/06

[58] **Field of Search** 128/17, 18, 13, 6, 23

[56] **References Cited**

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[57] **ABSTRACT**

A modified Graves Vaginal Speculum is provided having cooperating upper and lower blades pivoted with respect to one another, the upper blade having a longitudinal slot in the upper blade at the rear portion thereof, a removable light carrier member frictionally engaging the upper blade at the slot and curving rearwardly to engage a light source, said source and arm directing a light beam intermediate the two blades in their expanded position.

7 Claims, 8 Drawing Figures

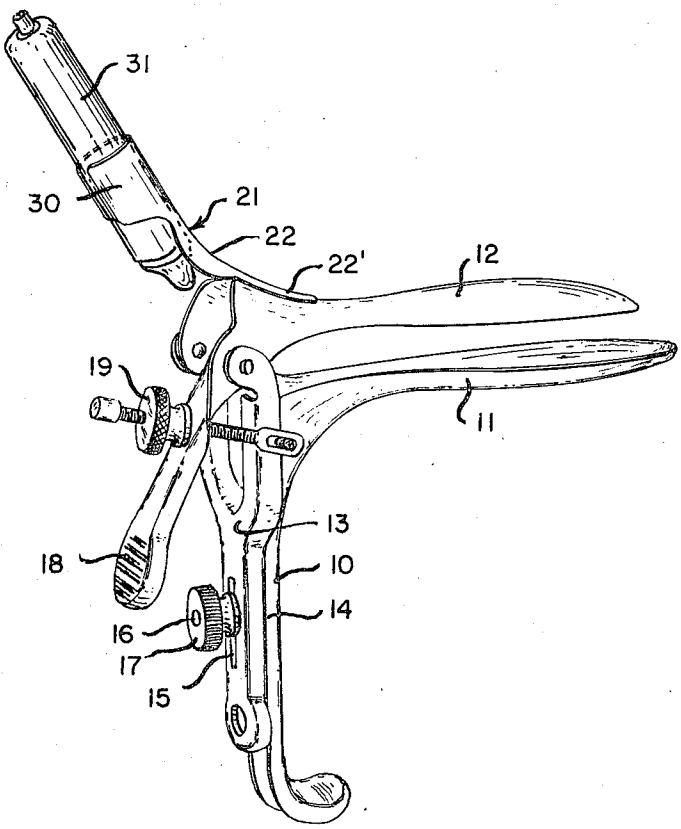
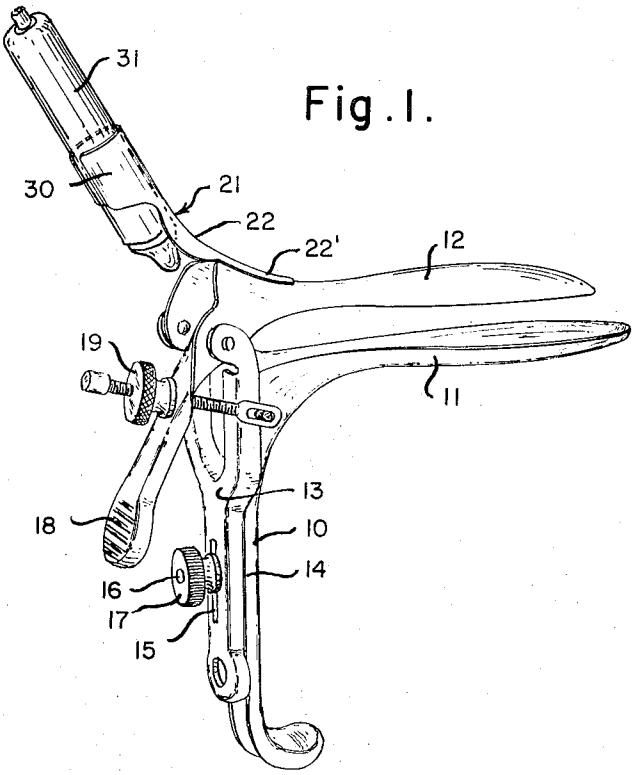


Fig. 1.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22'
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Fig. 2.

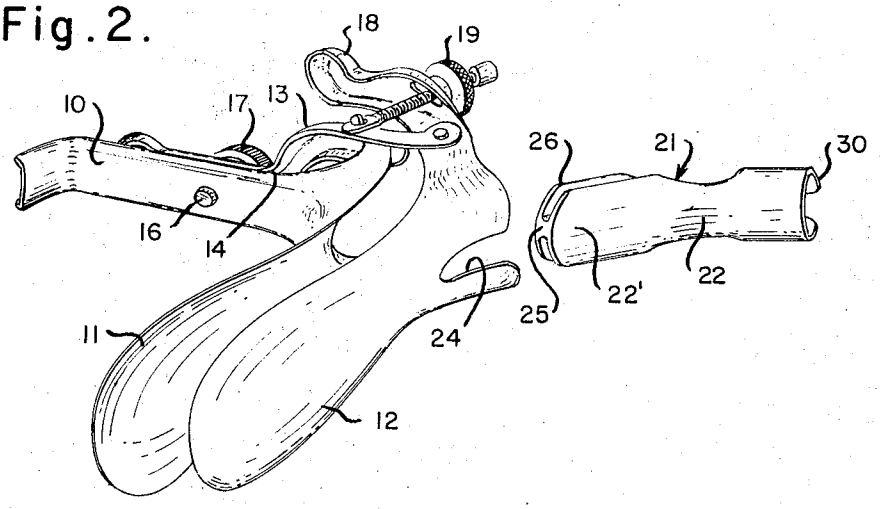
18
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Fig. 7.

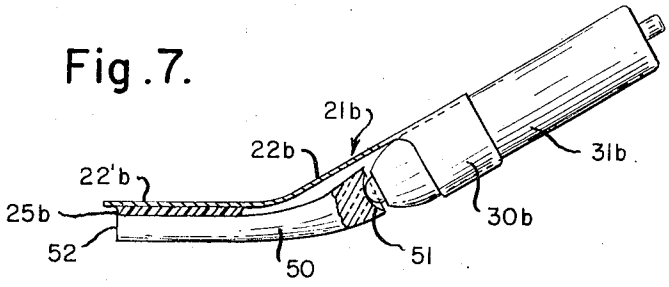


Fig. 8.

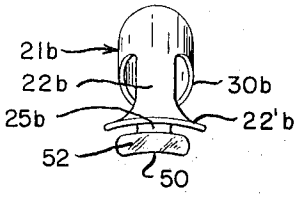


Fig. 6.

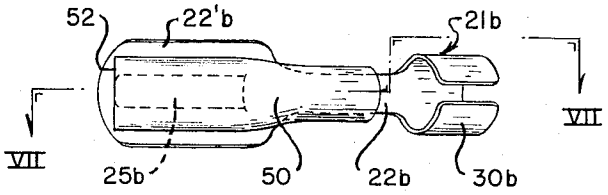


Fig. 4.

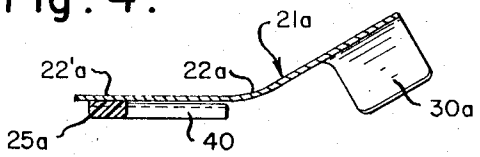


Fig. 5.

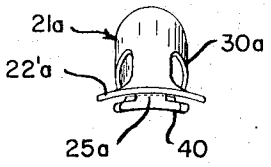
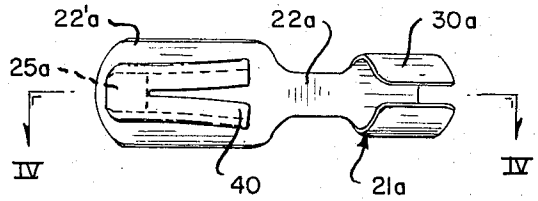


Fig. 3.



ILLUMINATING ATTACHMENTS FOR VAGINAL SPECULUM

This invention relates to illuminating means for vaginal speculum and particularly to a removable illuminating means for use with the well-known Graves Vaginal Speculum.

The problem of internal illumination of the vaginal cavity through a speculum has been one that has faced the medical profession for many years.

Many kinds of optical apparatus have been proposed for use by the physicans in the past for inspection and examination of the interior of different body cavities. For example, there have been devices provided for examination of the ears, the rectal cavity, the bladder and urinary tract and the like as well as the vaginal cavity. However, these devices have not been generally used by the medical profession for vaginal examination and are in fact not readily adapted to use for examination of the vaginal cavity using the vaginal speculum. The devices which have been proposed for the purpose of vaginal examination have been unsatisfactory for a variety of reasons. In many cases they obstruct the vision of the deep internal parts of the vaginal cavity and thus obliterate the very areas that they are intended to illuminate. Other devices which have been proposed do not satisfactorily illuminate the deep interior of the cavity and in almost all cases the device which has been proposed requires sterilization with the speculum or is designed to come into contact with the body cavity so that it must be sterilized with each use. This is a most unsatisfactory system, particularly where the light source itself must be sterilized.

The present invention is directed to an illuminating means including an adapter which is adapted to be used with the well-known and almost universally used Graves Vaginal Speculum or its equivalent. The adapter is designed to be attached to the vaginal speculum and to receive a removable light source so that the device itself is very simple. The adapter can be attached in such fashion that it does not contact the vaginal cavity and it can be readily sterilized, hot or cold, without serious damage to its structure. These considerations are all very important and make the structure of this invention uniquely satisfactory for this purpose.

Typical of the devices which have been proposed in the past are those illustrated in Gunning et al. U.S. Pat. Nos. 3,324,850; Strauch 3,075,516 and Wappler 1,913,780. These devices are subject to the defects which have been pointed out above and they have not met with acceptance in the medical profession.

I preferably provide a Graves Vaginal Speculum comprising cooperating upper and lower blades, a handle adjustable on the lower blade, a pivot on said handle carrying the upper blade a longitudinal slot in the upper blade at the rear portion, a removable light carrier member comprising a curved arm or blade portion having friction engaging means at one end adapted to engage the slot in the upper member of the speculum, clip means at the opposite end of the light carrier member adapted to engage and hold a light source and a light source in said clip. The light carrier member may include a fibre optics element into which the end of the light source projects and which element follows the blade of the light carrier member. The light carrier member may be made of stainless steel or any other suitable metal or it may be made of a suitable plastic

having sufficient strength and resilience to engage the speculum and the light source. The light source is preferably a pen light engaged in the friction clamp of the light carrier member.

In the foregoing description I have set out certain objects, purposes and advantages of my invention. Other objects, purposes and advantages will be apparent from a consideration of the following description and the accompanying drawings in which:

FIG. 1 is a side isometric view of a Graves Speculum and illuminating means according to this invention;

FIG. 2 is a top isometric view of the speculum of FIG. 1 broken apart;

FIG. 3 is a bottom plan view of a second embodiment of the friction clamp structure of this invention;

FIG. 4 is a section on the line IV—IV of FIG. 3;

FIG. 5 is an end elevational view of the clamp of FIG. 3;

FIG. 6 is a bottom plan view of still a third embodiment of the clamp and lighting structure according to this invention;

FIG. 7 is a sectional view of the clamp and light source on the line VII—VII of FIG. 6; and

FIG. 8 is an end elevational view of the clamp and light source of FIG. 6.

Referring to the drawings I have illustrated a speculum according to this invention. The instrument consists of a standard Graves Speculum having a handle **10** connected to a lower blade **11**, an upper blade **12** is pivotally attached to a riser mechanism **13** which is slidable in a track **14** in the handle. The riser mechanism is selectively positioned by means of a slot **15** in the riser mechanism which engages around a pin **16** carrying a threaded friction nut **17** on handle **10**. The upper blade of the speculum is provided with a control bar **18** and thumb screw **19** by means of which the physician can cause the remote ends of the two blades to separate within the vaginal cavity as the blades are pivoted with respect to one another at the handle. A light carrier member **21** having a curved arm portion **22** is provided with a friction member at one end which engages within the slot **24** which is standard in the rear end of the upper blade of every Graves Speculum. The friction member is preferably formed of an upstanding web **25** on the end **22'** of the arm portion with a thin flat plate **26** on the opposite side of the web whereby the arm portion **22'** engages the top surface of the upper blade while the plate **26** engages the bottom surface of the upper blade on each side of slot **24**. A cylindrical clip **30** is formed on the other end of the arm **22** removably receiving a pen light **31**. The curvature of arm **22** is such that the pen light is focused into the vaginal cavity when the two blades are opened within the cavity. The view of the examining physician is thus not obstructed, yet the cavity is fully illuminated.

In the embodiment shown in FIGS. **3–5** the structure features which are identical to those of FIG. **1** bear like numbers with the suffix *a*. The only difference in structure is in the use of a resilient tang **40** in place of the plate **26**.

Finally the embodiment illustrated in FIGS. **6–8** is also substantially the same as that of FIG. **1** in most structural features and those elements which are identical bear like numbers with the suffix *b*. This embodiment adds, however, a fibre optics element **50** which is cylindrical at one end and provided with a cup shaped portion **51** receiving the light bulb of source **31***b*, a pen

light. The element **50** is bent and flattened along the body of the arm **22***b* to a fan shape and being formed at the opposite end **52** with the fibres parallel to each other and in a direction aimed at a point intermediate the opened blades of the speculum.

In the foregoing specification I have set out certain preferred embodiments of my invention, however, it will be understood that this invention may be otherwise embodied within the scope of the following claims.

I claim:

1. A modified Graves Vaginal Speculum comprising cooperating upper and lower blades, a riser means adjustable on the lower blade, a pivot on said riser means pivotally carrying the upper blade, a longitudinal slot in the upper blade at the rear portion thereof, a removable light carrier member frictionally engaging said upper blade in said slot and forming a substantially smooth surface therewith, said light carrier member having a curved rearwardly extending arm, means on said carrier element for removably engaging a light source, a light source removably held in said means for engaging a light source outside the vaginal cavity, said light source and curved arm directing a light beam intermediate the two blades in their expanded position.

2. A speculum as claimed in claim **1** wherein the removable light carrier member frictionally engages the speculum between the arm and a spaced plate on the arm and held by a web adapted to fit within the speculum slot.

3. A speculum as claimed in claim **2** wherein the arm carries a fibre optics element which has a cylindrical end adjacent the light source and a wide flattened end at the remote end of the arm, said flattened end being fan shaped with the terminal ends of the fibres in parallel relationship.

4. A speculum as claimed in claim **1** wherein the light carrier element is of stainless steel.

5. A speculum as claimed in claim **1** wherein the arm is provided with spaced plates at one end connected by a web whereby the upper blade is frictionally engaged between the plates on opposite sides of the slot.

6. A speculum as claimed in claim **1** wherein the arm is made of plastic.

7. A modified Graves Speculum as claimed in claim **1** wherein the carrier element includes a top plate member substantially covering the slot in said speculum.

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