350-96.1 SR
E197A XR 3,724,448

[54] SOLID OVOSCOPE

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[51] **Int. Cl.** **A61b 1/00**
[58] **Field of Search** 128/6, 7, 8, 9

[56] **References Cited**

UNITED STATES PATENTS

2,102,274	12/1937	Larimore	128/6
2,482,971	9/1949	Golson	128/6
2,843,112	7/1958	Miller	128/6
3,357,433	12/1967	Fourestier et al.	128/6 UX
3,413,067	11/1968	Froio	128/6 X

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[57] **ABSTRACT**

A solid ovoscope having an outer plastic shell and an inner refringent body for use in visualizing amniotic contents and fetal assessment during pregnancy.

2 Claims, 3 Drawing Figures

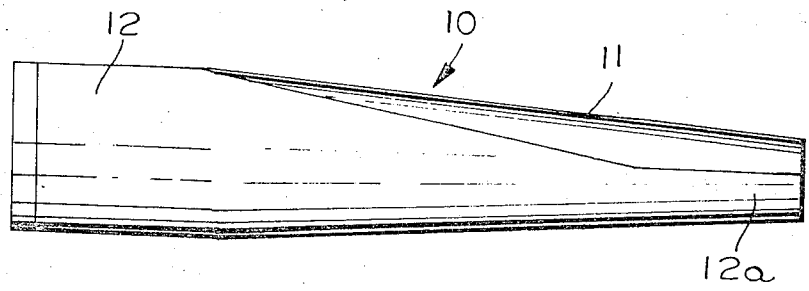
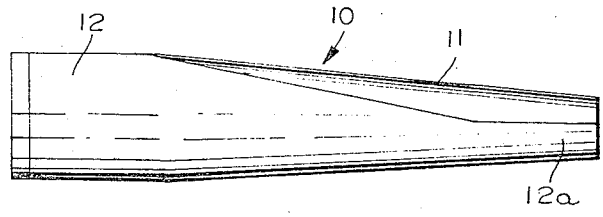


FIG. 1



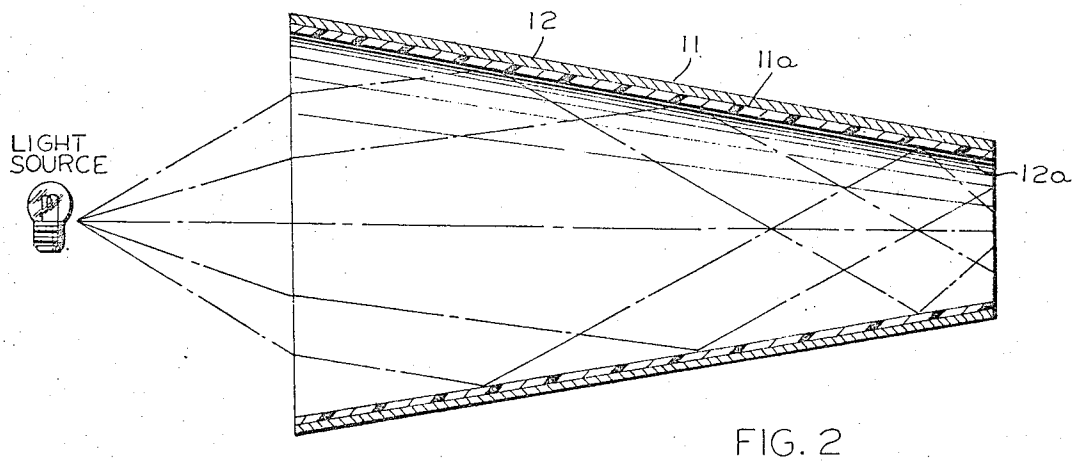


FIG. 2

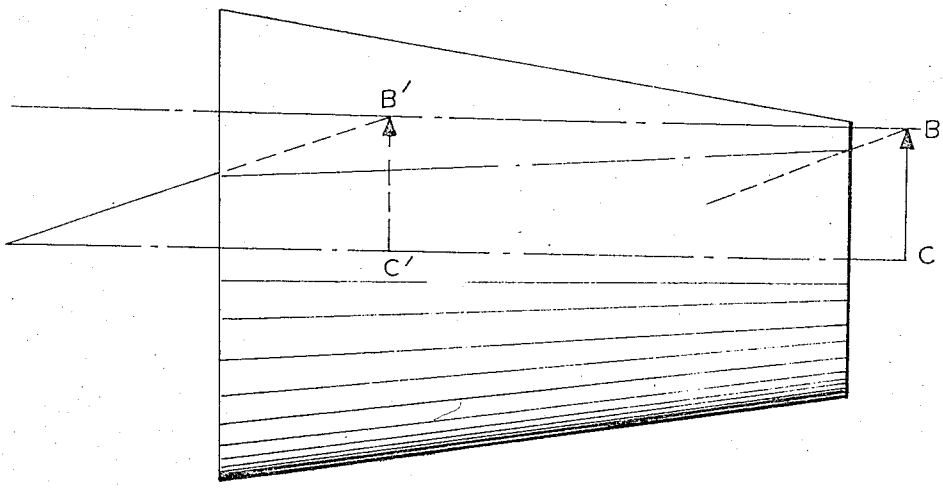


FIG. 3

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SOLID OVOSCOPE

BACKGROUND OF THE INVENTION

The advances in prenatal physiopathology have shown the importance of amnioscopy. Scalp blood sampling during delivery and fetal E.C.G. tacometry have proven the most reliable method of assessing fetal welfare. Both methods involve visibility and accessibility to the fetal head.

E. Saling describes in the article, "Die Amnioskopie, lin nenes Vergabren zum Erkennen von Gefabrenzustanden des Folten bei noch stehander Fruchtblase." Gefurtah.W.Franenheilk, 22, p. 830 1962, a special conic amnioscope having illuminating equipment for inspecting amniotic fluid through the intact membranes. It has the primary disadvantage in that it is introduced blindly into the vagina so that there is a danger of rupturing the membranes.

SUMMARY OF THE INVENTION

This invention relates to an ovoscope which can be used for clinical observation of a patient during pregnancy. More particularly, this invention relates to a solid amnioscope which utilizes a transparent refringent body in the form of a prism for clinical and/or photographic inspection of the amniotic fluid and fetal welfare during pregnancy.

The amnioscope of this invention comprises a rectangular prism of a transparent refringent body in an outer shell.

The outer shell of the amnioscope has internal walls capable of reflecting all internal rays. Preferably, the outer shell is a removable plastic or fiberglass shell having polished mirror-like internal walls that fit over the lateral surfaces of the prism leaving both bases uncovered.

The prism may be made from any refractory material. Preferably, the prisms of this invention are made of acrylic resins or plastics since they are light weight, easy to machine and also resistant to many chemical attacks.

The ovoscope may be of any length or width depending on use. Where the ovoscope comprises a rectangular acryllic prism with one of its bases machined into a 12° truncated cone the following dimensions have been found to be most effective:

1. For pre-labor use: an ovoscope having about 27 × 40 mm base; 10 mm in diameter tip, and about 200 mm length;

2. For use during labor: an ovoscope having about 27 × 40 mm base; 18 mm in diameter tip, and about 180 mm length;

3. For photography during labor: an ovoscope having about 24 × 40 mm base; 20 mm in diameter tip, and about 150 mm diameter length.

A suitable cover for the bases may be used. It has been found that for blood sampling or electrode implantation, the ovoscope should be introduced with the cover. Once the fetus is reached and an adequate section of the presenting part is chosen, the solid core is withdrawn, the cover is kept in place and the blood sampling or electrode implantation is performed.

The cover may be made of the same material as the shell portion.

It is an object of this invention to provide a means for visualizing amniotic contents and fetal welfare during pregnancy.

It is a further object of this invention to provide a light weight, inexpensive ovoscope which may be used for clinical inspection and photography.

While the foregoing objects are paramount, other and lesser objects and advantages of this invention will become apparent as the description proceeds when considered in connection with the appended drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a view of the ovoscope of this invention, without cover;

FIG. **2** is a diagrammatic illustrating the internal reflection and light concentration within the ovoscope of FIG. **1**;

FIG. **3** is a diagrammatic illustration of the phenomenon of approximation when using the ovoscope of FIG. **1**.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. **1** shows a solid ovoscope **10** having a removable fiberglass shell **11** and a rectangular acrylic prism **12** having one end **12***a* machined into a 12° truncated cone.

FIG. **2** illustrates the optical characteristics of the ovoscope **10**. It can be seen that divergent light from a light source enters the wider base of the prism **12** and is reflected by the internal walls **11***a* of the fiberglass shell **11**. The internal walls **11**a reflect all light rays which have an insertional angle smaller than the refractory angle of the acrylic prism **12**. It can thereby be seen that the optical qualities of acrylic and any other transparent refrigent material associated with the adequate form and angle of the external surface leads to light concentration on the opposite base. This concentration is inversely proportional to the area of the internal base.

In FIG. **3**, there is illustrated the phenomenon of approximation when viewing an object B–C whereby the image B′–C′ appears larger and nearer the observer.

In the use of the ovoscope of this invention the patient is kept in a gynecological position and a digital examination is carried out to locate the cervix. The ovoscope is taken from an antiseptic solution and inserted into the vagina. The process enables one to visualize the vaginal mucosa and its contents.

The tip of the ovoscope is directed to the posterior vaginal fornix and when the mucosa of the posterior fornix is reached it may be inspected. The prism **12** may be removed with the shell **11** in place so as to function as a conventional amnioscope and to permit accessibility to instrument manipulation.

Obviously, the embodiment shown is exemplary only and a wide variety of embodiments may be devised without departing from the spirit and scope of the invention.

What is claimed is:

1. A solid ovoscope consisting essentially of a removable outer fiberglass shell and an inner plastic refringent body having its base portions uncovered, said refringent body being an acrylic prism having one end forming a 12° truncated cone.

2. The ovoscope of claim **1** wherein the base portion opposite the truncated cone has a rectangular configuration.

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