Aug. 27, 1946. J. A. FORESTIERE 2,406,600

MEDICAL APPLIANCE

Filed Oct. 21, 1944

Fig. 1

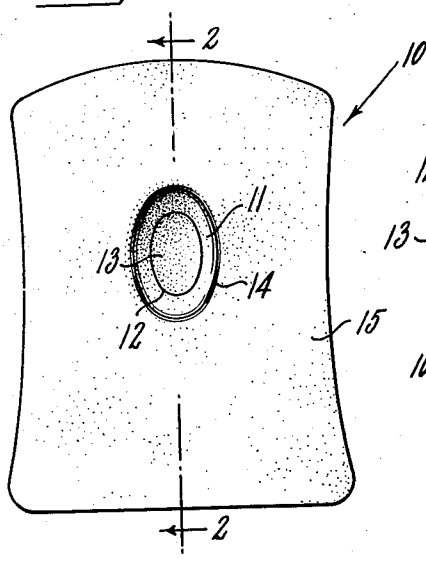
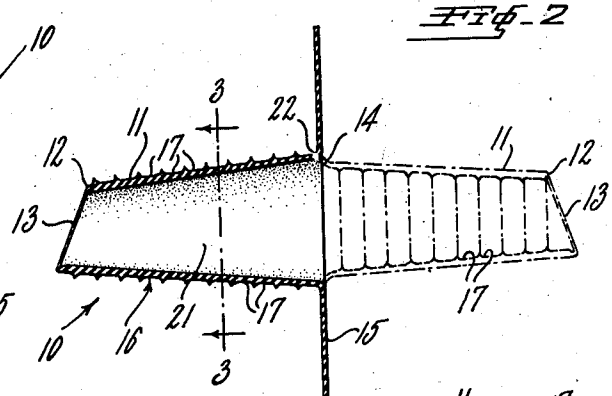


Fig. 2



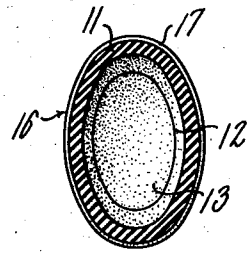
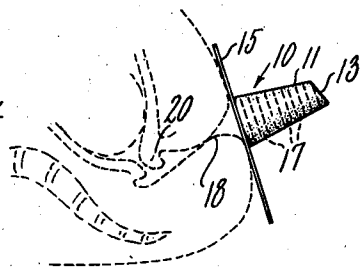


Fig. 5

Fig. 3

Fig. 4



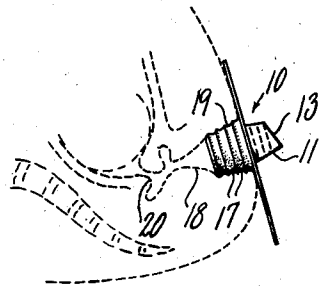
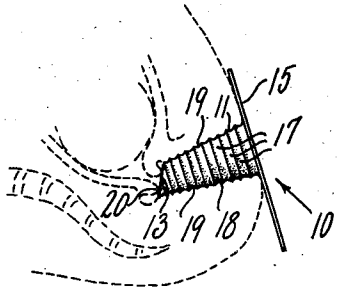


Fig. 6



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MEDICAL APPLIANCE

Jasper A. Forestiere, Brooklyn, N. Y.

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5 Claims. (Cl. 128—2)

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This invention concerns a medical appliance which is especially adapted for use by physicians in making examinations of the cervix in pregnancy.

It has been customary in making examinations of this kind for the physician to insert his gloved finger through the vaginal cavity and against the cervical parts of the womb to be examined. However, this method of examination has always been subject to the serious objection that in cases where bacteria were present along the walls of the cavity, such bacteria were invariably carried inward during the process of moving the finger into the cavity and usually reached the region of the cervical opening of the womb. In some cases resort was made to examination through the rectum although such procedure was not generally satisfactory owing to the interposed tissue which made examinations both inaccurate and difficult.

I have overcome the faults of prior practices by providing a simple and easily operable appliance which not only holds the walls of the cavity apart to facilitate the examination but also acts as a cover to entrap any bacteria on the wall surfaces. The appliance is in the form of a suitably shaped tube of resilient material such as rubber which lays against the cavity walls a protective covering. A thin diaphragm of impervious material such as rubber closes the inner end of the tube and occupies a position adjacent the cervix whereby the same may be readily explored by placing the finger through the opening in the tube and against the diaphragm. An apron or shield may be provided at the open end of the tube to cover the portions of the body in the region surrounding the cavity opening.

The appliance affords a complete cover for the internal passage leading to the parts to be examined, is easy to adjust to position, and inexpensive to manufacture from any suitable resilient material such as properly compounded natural rubber latex or appropriate synthetic materials.

In the accompanying drawing which forms a part of this specification a practical embodiment of the invention and its manner of use are given for illustrative purposes.

Fig. 1 is a front elevation of an appliance made according to my invention.

Fig. 2 is a longitudinal sectional view thereof on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged transverse cross section on the line 3—3 of Fig. 2.

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Figs. 4, 5, and 6 views showing the manner in which the appliance is used.

In the drawing the numeral 10 indicates the appliance which includes a slightly tapered tube or wall 11 of resilient material such as rubber. The tapered tube 11 is closed at its small end 12 by a relatively thin diaphragm 13 while the other end of the tube is open at 14 and may be provided with a shield or apron 15. The outer surface 16 of the tube between the shield 15 and the diaphragm 13 is defined by a series of circumferential pockets or channels 17 which are adapted to contact the interior wall surfaces of the vaginal cavity 18 as illustrated in Fig. 6.

In operation the appliance 10 is first turned inside out, that is the tube 11 is turned to the dotted line position shown in Fig. 2, which places the pockets 17 on the inside of the tube, keeping this inner surface sterile. The appliance is next placed over the outside of the cavity 18 as shown in Fig. 4. Next by rolling the wall of the tube back through the opening 14 to the left as viewed in Fig. 5 the pockets 17 are brought, one after another, against the surrounding walls 19 of the cavity 18. In this way the pockets 17 are placed laterally against the cavity walls, starting with the pocket nearest the shield 15 and ending with the last pocket adjacent the diaphragm 13, whereby in the event that bacteria is present on the wall surfaces it is covered over and not moved inward of the cavity. The diaphragm in its final position as shown in Fig. 6 reaches a point either in contact with or close to the cervix 20 which may be examined through the opening 21 of the tube while the resilient wall thereof holds the cavity open.

The proportions of the appliance may be altered as found desirable, and the particular nature of the rubber composition varied according to well known rubber practices. Where a relatively soft rubber is used the wall of the tube necessarily will be of thicker gauge than where a less pliable composition is used. The most desirable construction is that in which the composition used permits the wall thickness to be kept at a minimum in the interest of ease of manipulation while giving the required resilient action to open the cavity.

It is also of advantage to form the tube so that the wall thickness thereof as indicated at 22 adjacent the shield 15 is less than at the diaphragm end of the tube. This variation in wall thickness may be increased slightly and gradually toward the diaphragm 13 substantially as shown in the drawing whereby the thinner portion of the tube

nearest the shield will fold over laterally against the inner wall of the cavity before the other portions of the tube. This is followed in order by the gradually increased thicker portions insuring that the action will be one of rolling the wall of the tube smoothly into the cavity and that no lengthwise sliding of the tube will take place during the process.

Preferably when a planar diaphragm is used it is disposed diagonally of the longitudinal axis of the tube so as to occupy a position generally at a right angle to the axis of the cervical opening. The shape of the diaphragm may be considerably varied. For instance it may be rounded outward or inward or have a bulbous formation in the nature of a finger stall or other appropriate outline. The tube 11 may be of oval contour in transverse cross section approximating that shown in Fig. 3, and the entire appliance molded in one piece by an ordinary rubber molding operation, or the parts made separately and then secured together by cementing or vulcanizing.

It is to be understood in conclusion that the invention is capable of other embodiments and modifications and that the present example is merely one of its practical forms.

I claim:

1. A medical appliance comprising a tube of resilient material closed at one end by a relatively thin diaphragm, a shield at the open end of the tube, the wall of the tube being of gradually reduced thickness from the diaphragm to the shield.

2. A medical appliance comprising a relatively stiff tube of resilient material closed at one end by a thin diaphragm and capable of being turned inside out, said tube being adapted to be inserted into the vaginal cavity by placing the open end of the tube against the entrance to the cavity and pressing against the protruding portion of the tube to force it into the cavity by turning the tube inside out progressively along its length and thereby bring the formerly inner wall of the tube laterally into contact with the surrounding surface of the cavity, said tube being effective to hold the walls of the cavity apart to provide a clear passage through the tube for access to the diaphragm.

3. A medical appliance comprising a relatively stiff tube of resilient material closed at one end

by a thin diaphragm and capable of being turned inside out, said tube being provided with a plurality of pockets adapted to be faced against the surface of the vaginal cavity, said tube being arranged to be inserted into the cavity by placing the open end of the tube against the entrance to the cavity and pressing against the protruding portion of the tube to force it into the cavity by turning the tube inside out progressively along its length and thereby bring the pockets into contact with the surface of the cavity, said tube being effective to hold the walls of the cavity apart to provide a clear passage for access to the diaphragm.

4. A medical appliance comprising a relatively stiff tube of resilient material closed at one end by a thin diaphragm and capable of being turned inside out, said tube being of gradually reduced circumference from the open end toward the diaphragm and adapted to be inserted into the vaginal cavity by placing the open end of the tube against the entrance to the cavity and pressing against the protruding portion of the tube to force it into the cavity by turning the tube inside out progressively from the open end to the smaller opposite end of the tube and thereby bring the formerly inner wall of the tube into contact with the surrounding surface of the cavity, said tube being effective to hold the walls of the cavity apart to provide a clear passage for access to the diaphragm, there being a series of circumferential channels on the tube which face the surface of the cavity.

5. A medical appliance comprising a relatively stiff tube of resilient material closed at one end by a thin diaphragm and capable of being turned inside out, said tube being adapted to be inserted into the vaginal cavity by placing the open end of the tube against the entrance to the cavity and pressing against the protruding portion of the tube to force it into the cavity by turning the tube inside out along its length and thereby bring the formerly inner wall of the tube into contact with the surrounding surface of the cavity, said tube being effective to hold the walls of the cavity apart to provide a clear passage to the diaphragm, said tube being channeled on the side thereof which faces the surface of the cavity, and a shield at the open end of the tube.

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