

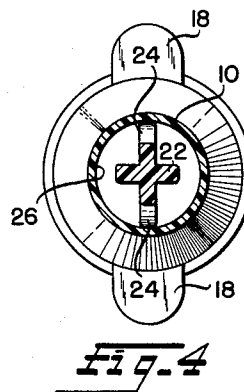
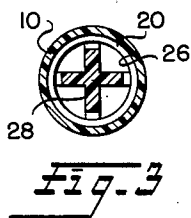
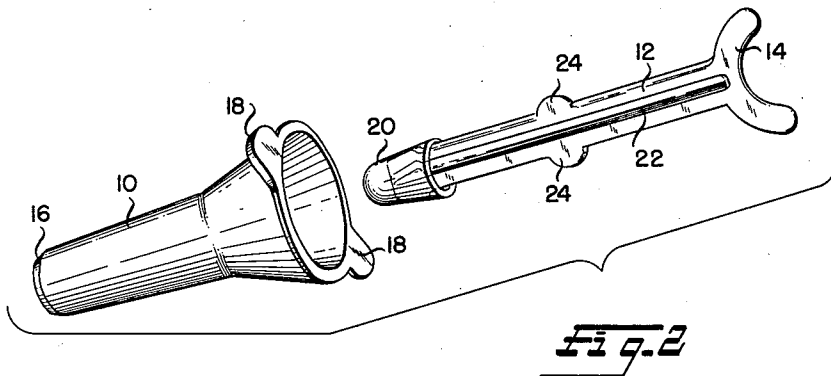
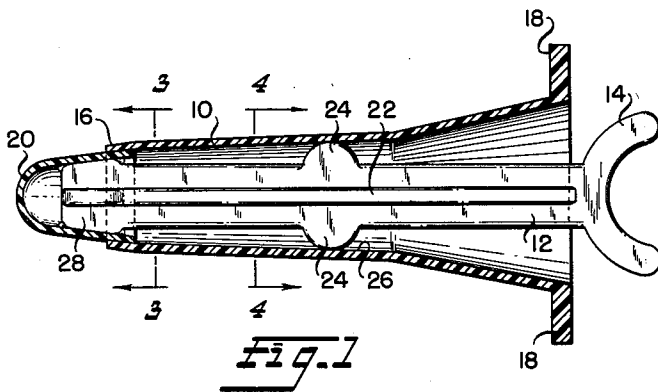
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ORIFICIAL DIAGNOSTIC INSTRUMENT

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ORIFICIAL DIAGNOSTIC INSTRUMENT

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3 Claims. (Cl. 128—3)

This invention relates to medical diagnostic instruments of the class employed for examination of body cavities, and more specifically relates to disposable anosopes.

The practice of the medical profession to use disposable, pre-sterilized instruments has created a demand for inexpensive instruments which are made of relatively inexpensive pliant plastic materials. For medical instruments adapted to be inserted into orificial cavities, sufficient strength in compression may be achieved with relatively thin walled instruments such for example as the anoscope shown in U.S. Patent No. 3,038,466 to Moore. However, the instrument there shown requires one hand for insertion of the obturator and the other hand for insertion of the speculum. Care must be taken to keep the obturator and speculum aligned to avoid discomfort to the patient. If too much force is used, splitting of the end of the speculum can readily occur due to the fact the distal end of the speculum must be tapered for an easy, painless insertion of the instrument, and the instrument rendered useless.

The major object of the present invention resides in providing an improved instrument wherein the speculum obturator may both be held by one hand with alignment of the speculum and obturator provided by novel positioning means on the obturator stem that engage the inside walls of the speculum and prevent the obturator from being pushed completely through the distal end of the speculum.

Another object resides in providing a novel, rigid obturator stem, by providing for example an X shaped cross-section with integrally formed tabs on diametrically opposite sides of the stem which cooperate with the tapered walls of the speculum to properly locate the obturator in the speculum.

Still another object resides in a novel connection between the obturator stem and the tapered, cup-shaped member on the distal end of the obturator.

These and other objects of the invention will become more fully apparent from the claims, and from the description as it proceeds in connection with the drawings wherein:

FIGURE 1 is a longitudinal elevation in section of a disposable medical instrument of the present invention;

FIGURE 2 is an exploded perspective view of the two parts to the instrument shown in FIGURE 1;

FIGURE 3 is an elevation in section taken along line 3—3 of FIGURE 1; and

FIGURE 4 is an elevation in section taken along line 4—4 of FIGURE 1.

Referring now to the drawings, the instrument includes a disposable speculum 10 and disposable obturator 12 which is positioned in the speculum as shown in FIGURE 1 when the instrument is inserted into a body cavity to provide a relatively smooth, tapered entering portion. After the speculum has been fully inserted in the body cavity, the obturator is removed by means of a handle 14 at the proximal end thereof which permits the physician to look through speculum 10.

Speculum 10 may be of molded transparent plastic, and formed to have walls of generally uniform thickness with a generally frusto-conical outer surface. The wall thickness at the distal end 16 may be slightly reduced for decreasing discomfort to the patient. A pair of wings 18 may be provided at the enlarged proximal end to

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allow the operator to hold the instrument with his index and middle finger during insertion which gives him better control than he has with an instrument having a handle. Wings 18 also give the operator a means of controlling speculum 10 after obturator 12 is removed.

Obturator 12 has an end cap 20 which is cup-shaped to have a hollow interior and may be formed of plastic. The exterior surface is smooth and frusto-conically shaped. The dimensions are chosen so that when inserted in speculum 10, a portion of end cap 20 extends through the distal end of speculum 10 as shown in FIGURE 1.

The obturator stem 22 is formed to be rigid and for this reason is given a suitable cross-section, which as shown in FIGURES 3 and 4 is preferably X shaped. A rod having this cross-section can be readily molded. Handle 14 may be formed as an integral extension of the end of stem 22. The reason for using this cross-sectioned shape is that a flat or round stem of the size that can be accommodated in an instrument of this type formed of an inexpensive plastic would be slightly flexible thus allowing some movement of cap 20 relative to speculum 10, which is an undesirable condition causing discomfort to the patient.

Near the center of stem 22 are a pair of tabs 24 that are formed integrally as part of stem 22. Tabs 24 provide projecting surfaces that engage the inside tapered wall surface 26 of speculum 10 at a taper region to thereby center stem 22 relative to speculum 10. Another important function of tabs 24 is that they provide a stable supporting position beyond which the obturator cannot advance in the speculum that prevents undesired relative movement between end cap 20 and speculum 10 during insertion. This limit positioning also prevents end cap 20 from ever extending completely through or causing splitting of the distal end of speculum 10.

The end 28 of stem 22 is enlarged and tapered to fit rigidly along the inside of end cap 20. End cap 20 may then be adhesively connected to stem 22 as by a suitable plastic cement.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

What is claimed and desired to be secured by United States Letters Patent is:

1. In a medical diagnostic instrument:

(a) a disposable speculum of relatively thin-walled, plastic material, said speculum having a substantially frusto-conical outer surface for insertion into a body cavity and an inside wall including a centrally located gradually tapered wall region providing a hollow interior; and

(b) an obturator carried within the speculum comprising:

(1) a smooth, rounded, frusto-conical member adapted for insertion from the proximal end of said speculum through its hollow interior to extend partially through the distal end thereof; and

(2) a stem for said obturator comprising a rod like member of plastic material secured at its distal end to said frusto-conical member and having a hand engaging portion at its proximal end; and

(3) means for centering the obturator stem in said speculum when the insertion member extends through the distal end of said speculum

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comprising stop means having essentially radially projecting surfaces located along a central portion of and integral with said stem and essentially longitudinally extending surfaces to abut the inside wall of said speculum at said centrally located gradually tapered wall region thereby centering the obturator within the speculum and reinforcing the stem against bending while preventing the inserting member on the obturator from passing completely through the distal end of said speculum.

2. The instrument as claimed in claim 1 wherein the cross-section of the rod-like member serving as the obturator stem is X shaped, the insertion member is a hollow, cup-shaped body, and the end of the rod-like member where the cup-shaped body is secured is tapered to fit along inside walls of the cup-shaped body and secured thereto by an adhesive.

3. In a medical diagnostic instrument:

(a) a disposable speculum of relatively thin-walled, plastic material, said speculum having a substantially frusto-conical outer surface for insertion into a body cavity and an inside wall including a centrally located gradually tapered wall region providing a hollow interior; and

(b) an obturator carried within the speculum comprising:

(1) a smooth, rounded, frusto-conical member adapted for insertion from the proximal end of said speculum through its hollow interior to extend partially through the distal end thereof; and

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(2) a stem for said obturator comprising a rod-like member of plastic material having an X shaped cross section, said rod-like member being secured at its distal end to said frusto-conical member and having a hand engaging portion at its proximal end; and

(3) means for centering the obturator stem in said speculum when the insertion member extends through the distal end of said speculum comprising positioning surfaces forming essentially radially projecting arcuately shaped tabs located along a central portion of and integral with said stem and extending essentially longitudinally along diametrically opposite sides of said stem to abut the inside wall of said speculum at said centrally located gradually tapered wall region thereby centering the obturator within the speculum and reinforcing the stem against bending while preventing the inserting member on the obturator from passing completely through the distal end of said speculum.

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