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W. C. MOORE

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DISPOSABLE SPECULUM COVER

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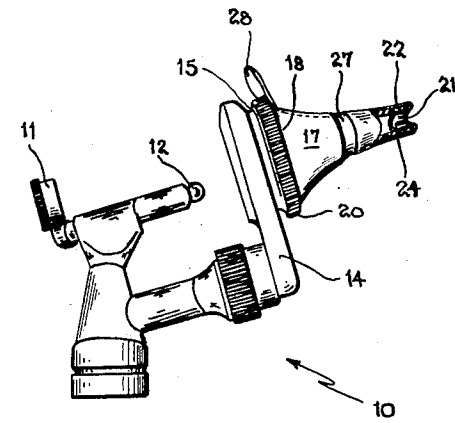


Fig. 1

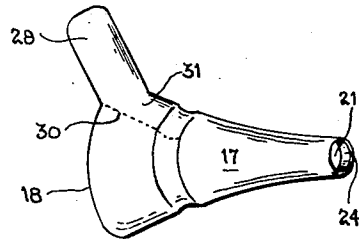
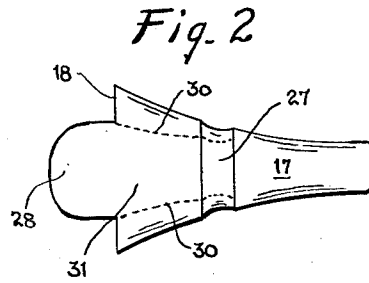


Fig. 3

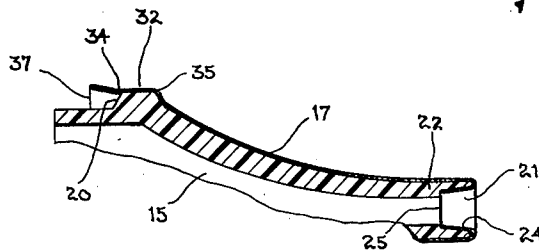


Fig. 4

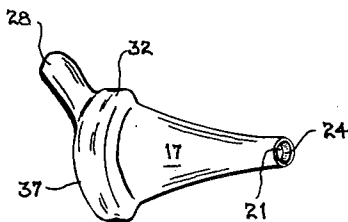


Fig. 5

INVENTOR.
WILLIAM C. MOORE
BY
Richard von K. Braun
Attorney

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DISPOSABLE SPECULUM COVER

William C. Moore, Skaneateles, N. Y., assignor to Welch Allyn, Inc., Skaneateles Falls, N. Y., a corporation of New York

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This invention relates in general to medical instruments, and has particular reference to a disposable speculum cover for medical instruments employing specula for entry into body passages.

Specula are employed principally on otoscopes, which are utilized in diagnosing and treating conditions of the ear, nose and throat. One of the chief uses of the otoscope is for the examination and treatment of the ear, the passage of which almost invariably contains wax and dirt. As a result, the end of the otoscope speculum that enters the ear passage usually collects some of this wax and dirt, which must of course be cleaned from the speculum before it can be again used.

The most effective method of cleaning and sterilizing specula and other medical instruments is by boiling or steam autoclaving. However, a physician making house calls does not have immediate access to the necessary equipment for this, and usually resorts to a cloth or tissue to clean the speculum which method is neither thorough nor sanitary. Furthermore, the wax and dirt from the ear passage frequently collects in the small opening in the distal end of the speculum so that it cannot be reached by a cloth or tissue and must remain until proper sterilization can take place.

In order to solve this problem and enable the otoscope to be used in a more sanitary manner under the above conditions, the present invention contemplates and has as its primary object the provision of a disposable speculum cover which shields the speculum from direct contact with ear wax and dirt, the latter being picked up instead by the cover which is disposed of after use. In accordance with the invention, the speculum cover disclosed herein closely engages the speculum and in no way interferes with the normal operation of the otoscope, the cover being formed of inexpensive material by mass production methods so that a package of a dozen or more of the covers can be sold for only a few cents.

In addition to the broad objective stated above, another important object of the invention is to provide a disposable speculum cover which is simple to attach to and remove from the speculum.

A further important object of the invention is to provide a disposable speculum cover which can be packaged in stacked fashion in a small, compact package which will easily fit within the physician's instrument case.

A more specific object of the invention is to provide a disposable speculum cover having an inwardly turned flange at the apex thereof which flange is adapted to enter the opening at the distal end of the speculum to pick up any wax or dirt which might otherwise collect in the opening.

Another specific object of the invention is to provide a disposable speculum cover having a releasable securing means to hold the cover in position on the speculum during use.

A further specific object of the invention is to provide

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a disposable speculum cover having means thereon to effect a rapid removal of the cover from the speculum after use.

Other objects and advantages of the invention will become apparent from the following detailed description thereof read in conjunction with the accompanying drawings which illustrate typical embodiments of the invention for the purpose of disclosure.

In the drawings:

Figure 1 is a side elevation of an otoscope head and speculum with a disposable speculum cover embodying the invention mounted on the latter, a portion of the distal end of the speculum and cover being broken away to show the details thereof;

Figure 2 is a top plan view of the disposable speculum cover shown in Figure 1;

Figure 3 is a perspective view of the disposable speculum cover shown in Figure 1;

Figure 4 is a fragmentary section through a speculum with a slightly modified form of disposable speculum cover mounted thereon; and

Figure 5 is a perspective view of the disposable speculum cover shown in Figure 4.

Having specific reference now to the drawings, wherein like reference numbers designate the same part in all the views, **10** generally indicates an otoscope head of a well-known type, the head including the rear sight lens **11**, illuminating lamp **12**, speculum holder **14**, and speculum **15**. The speculum **15**, while removable from the remainder of the head **10**, is considered a permanent part of the otoscope in contrast to the disposable speculum cover disclosed herein. This permanent speculum is a rigid structure and is generally formed of metal or nylon. Each instrument is usually provided with several such specula of different sizes at the distal end to accommodate ear passages of varying diameters and formations.

The disposable speculum cover, indicated generally at **17**, is a hollow, substantially frusto-conical body which is open at its base and apex ends and conforms closely to the shape of the speculum with which it is to be used. The covers are preferably formed of plastic material that is drawn or moulded into an exceedingly thin-walled body, the thickness thereof being in the nature of .005 inch in practical embodiment of the invention. Because of the extreme thinness of the material forming the cover, the cover has a certain amount of flexibility or resiliency although it is sufficiently rigid to retain its shape until destroyed.

As shown in Figure 1, when the speculum cover **17** is positioned on the speculum **15**, it completely covers the exterior surface of the body passage entering portion of the speculum, its rear or base edge **18** terminating just short of the knurled band **20** adjacent the proximal end of the speculum. The orifice **21** at the apex end of the cover corresponds to the opening in the distal or forward end **22** of the speculum, and at this orifice the cover is bent back upon itself to form an inwardly extending annular flange **24**. This flange projects into the distal opening of the speculum and extends rearwardly a sufficient distance to collect any dirt or wax that might otherwise be deposited in this portion of the speculum. If desired, the distal opening of the speculum can be formed with a counterbore **25**, Figure 4, to receive the flange **24** so that the latter will not obstruct the opening.

In order to secure the speculum cover **17** in position on the speculum, it may be provided with an annular portion **27** of reduced diameter between its base and apex ends. This reduced portion serves to grip or frictionally engage the speculum so that the cover is maintained in proper relation thereto during use but can be easily removed therefrom after use. Removal of the speculum cover from the speculum is facilitated by a rearwardly

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and outwardly extending tab 28 which provides a convenient finger grip for withdrawing the cover and also eliminates the necessity for handling the portion thereof that has entered the body passage. In addition to the tab 28, the cover may be perforated as shown at 30 in Figures 2 and 3 to define a tear strip 31 forming a continuation of the tab. This tear strip would prevent a re-use of the cover as well as aiding in the quick and easy removal thereof.

A modified form of the cover securing means is shown in Figures 4 and 5 wherein the speculum cover 17 is releasably secured in position on speculum 15 by means of an annular flange 32 extending rearwardly from the base edge 18 of the cover. Flange 32 is adapted to frictionally engage the knurled band 20 on the speculum and, to this end, is formed with a slight circumferential indentation between its edges as indicated at 34 in Figure 4. The diameter of the flange is therefore slightly less at the indented portion 34 than it is at its forward edge 35 so that the flange snaps into securing engagement with the speculum when the cover is fully positioned thereon. Since the rear edge 37 of the flange 32 provides an efficient finger grip for easy removal of the cover, the tab 28 can, if desired, be eliminated from this modification as indicated in Figure 5.

Because of the hollow, substantially conical shape of speculum covers 17 and extreme thinness of the material forming them, they naturally lend themselves to stacking and can be packaged in quantities of a dozen or more in compact, sterile packages. The packages are sufficiently small so that a package of covers for each size of speculum can usually be stored right in the otoscope carrying case, and the physician needs only to select the proper size and position it on the speculum prior to using the instrument. After use, the speculum is simply removed and thrown away as described hereinabove.

While the disposable speculum cover disclosed herein has been particularly described in connection with an otoscope, it will be understood that the cover can also be used with other types of medical instruments having body entering portions.

From the foregoing description it will be apparent that the invention provides a novel and highly useful article of manufacture which insures more sanitary and efficient use of otoscopes and like medical instruments. In addition to providing a sanitary method of examining and treating the patient, the disposable speculum cover herein disclosed makes the physician's task easier and saves his time, the total cost being inconsequential.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The embodiments disclosed are therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims.

What is claimed is:

1. A disposable speculum cover for a medical diagnostic instrument comprising a hollow, substantially conical body of thin pliant material, said body having an opening in the apex end thereof and being bent back upon itself to form an inwardly extending annular flange within said opening.

2. A disposable speculum cover for a medical instrument comprising a thin-walled, frusto-conically shaped body open at its base and apex ends, said body being bent back upon itself at its apex opening to form an annular flange extending into the interior of the body.

3. A disposable speculum cover of thin flexible material for a medical instrument having a rigid, permanent type speculum, said cover closely conforming in shape to the shape of said permanent speculum and having an apex orifice corresponding to the distal opening in the permanent speculum, and an annular flange on said cover extending inwardly from the periphery of said apex

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orifice to cover the inner surface of said permanent speculum adjacent the distal opening thereof.

4. A disposable speculum cover of thin gauge flexible material for the permanent speculum of a medical instrument, said cover closely conforming in shape to the shape of said permanent speculum and having an apex orifice corresponding to the distal opening in the permanent speculum, an annular flange on said cover extending inwardly from the peripheral edge of said apex orifice to overlie the inner surface of said permanent speculum adjacent the distal opening thereof, and means on said cover to detachably secure it in position on said permanent speculum.

5. A disposable speculum cover of thin flexible material adapted to be mounted on the permanent speculum of a medical instrument, said cover closely conforming in shape to the shape of said permanent speculum and having an apex orifice corresponding to the distal opening in the permanent speculum, an annular flange on said cover extending inwardly from the peripheral edge of said apex orifice to cover the inner surface of said permanent speculum adjacent the distal opening thereof, and tab means on said cover to facilitate its removal from said permanent speculum.

6. An article as defined in claim 4 wherein said securing means comprises an annular portion of reduced diameter on said cover between its base and apex ends.

7. An article as defined in claim 5 wherein said cover includes a perforated tear strip portion coactable with said tab means to facilitate removal of the cover.

8. A disposable speculum cover of thin flexible material adapted to be mounted on the permanent speculum of an otoscope during the examination of a patient, said cover closely conforming in shape to the shape of said permanent speculum and having an apex orifice corresponding to the distal opening in the permanent speculum, means on said cover to detachably secure it in position on said permanent speculum, and means associated with said cover to effect the removal thereof from said permanent speculum after the examination.

9. In a medical instrument, the combination of a rigid, permanent type speculum, said permanent speculum being formed with an enlarged band adjacent its proximal end and having a counterbore in its distal opening, a disposable cover for said permanent speculum formed of thin gauge flexible material and conforming closely in shape to the shape of the permanent speculum, said cover having an apex orifice corresponding to the distal opening in the permanent speculum, an annular flange on said cover extending inwardly from the periphery of said apex orifice into the counterbore in said permanent speculum, and means adjacent the base end of said cover engageable with the band on said permanent speculum to detachably secure said cover thereto.

10. In a medical instrument, a rigid, permanent type speculum adapted to receive a disposable speculum cover during use, said permanent speculum being formed with a counterbore in its distal opening, and an annular shoulder adjacent the proximal end of said permanent speculum adapted to coact with the disposable cover to detachably secure the latter to the permanent speculum.

11. In a medical diagnostic instrument, a rigid, permanent type speculum forming part of said instrument, said permanent speculum being particularly adapted to receive a thin-walled disposable speculum cover during use, said permanent speculum having a counterbore in its distal opening extending from the outer peripheral edge of the opening to a point spaced rearwardly therefrom to receive an inwardly turned portion of the disposable cover, and means formed integrally with said permanent speculum and projecting outwardly therefrom adjacent its proximal end to coact with the disposable cover to detachably secure the latter to the permanent speculum.

12. A disposable speculum cover for mounting on the permanent speculum of a medical instrument while the

instrument is being used on a patient, said disposable cover comprising a thin walled, frusto-conical body open at its base and apex ends and closely conforming in shape to the shape of said permanent speculum, releasable securing means on said cover to hold it in position on said permanent speculum during use, and tab means on said cover to facilitate its removal from the permanent speculum after use.

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