This invention relates to a tongue depressor and more particularly to a disposable tongue depressor with a self-contained source of illumination for use by physicians and dentists in examining the teeth, mouth and throat.

A tongue depressor is a medical instrument used by physicians to assist them in examining the oropharyngeal cavity, the tongue depressor being used by the physician to depress the tongue in order to provide a clear visual field of the oropharyngeal cavity. The tongue depressors in common use today are flat pieces of material made from either metal, wood or plastic, which are discarded after each use, or, in the case of metal, sterilized and re-used.

In examining the oropharyngeal cavity, the physician must be in addition to a tongue depressor a source of illumination in order to illuminate the oropharyngeal cavity. At the present time sources of illumination available to a physician during examination of the oropharyngeal cavity are either a fixed light source, such as sunlight, or other fixed sources of artificial illumination, or a movable light source, such as a flashlight. Both of these presently available sources of illumination have inherent disadvantages. In both cases the source of illumination is separate from the tongue depressor. In the case of a fixed light source the physician must position the patient in such a way that the fixed light source is directed generally into the oropharyngeal cavity. It is frequently impossible to position the patient in such a manner as to obtain adequate illumination of the oropharyngeal cavity when only a fixed light source is available. In the case of the use of a movable light source, such as a flashlight, both hands of the physician are occupied during the examination, one to hold the light source and the other to hold the tongue depressor, which does not allow the physician a free hand in order to adequately examine the oropharyngeal cavity or to apply medication. In addition, the physician must always adjust the angle of the movable light source to the movement of the tongue depressor.

In view of the foregoing, the primary purpose of the present invention is to provide a tongue depressor which has combined therewith its own source of illumination in order to obtain adequate illumination of the oropharyngeal cavity.

Another object of the present invention is to provide a tongue depressor with its own source of illumination, which is simple and inexpensive to manufacture, thereby permitting disposal after a single use.

Another object of the present invention is to provide a disposable tongue depressor, which is adapted to be detachably secured to a handle containing a source of energy for illuminating the tongue depressor, the source of energy being rechargeable.

These and further features and objects of the present invention will appear from a reading of the following detailed description of a preferred embodiment of the invention, to be read in conjunction with the accompanying drawings, wherein similar parts in the various views are identified by the same reference numeral.

In the drawings:

FIGURE 1 is a perspective view of the disposable tongue depressor of the present invention.

FIGURE 2 is a side elevation view in cross-section of the disposable tongue depressor of the present invention.

FIGURE 3 is an end view of the disposable tongue depressor of the present invention, and

FIGURE 4 is an exploded view of a detail of FIGURE 2, illustrating the manner in which the disposable blade is ejected from the handle.

Briefly stated, the disposable tongue depressor of the present invention includes a handle which is adapted to have removable secured thereto a blade which functions at the tongue depressor and which may be removed from the handle after use and discarded. The handle includes a light source, such as a bulb, which is energized by a battery in the handle. The light bulb extends from the handle and is adapted to be received in the blade or tongue depressor in such manner that the bulb is positioned adjacent the end of the blade when the blade is attached to the handle.

The handle is supplied or provided with a switch for connecting the bulb to the battery in the handle in order to light the bulb. The handle is also provided with means for ejecting the blade or tongue depressor after use, so that the blade or tongue depressor can be discarded.

Referring now to the drawings and particularly to FIGURE 1, there is illustrated the handle and blade of the tongue depressor of the present invention, the handle being identified in general by the numeral 10. The handle 10 includes a head 11 preferably made of plastic or other electrically non-conductive material. Extending axially from the head 11, is a filament 12, which has attached to the ends thereof a bulb 13. In order to protect, insulate and make rigid the filament 12, the filament 12 is encased in a rod 14. The filament 12 and bulb 13 are preferably covered with a transparent plastic cover or rod 15, such that the head 11, filament 12 and bulb 15 may all be molded at the same time in one operation.

The blade or tongue depressor is identified in general by the numeral 15. The blade 15 is preferably formed from a transparent molded plastic, so that the blade 15 is rigid. The cross-section of the blade 15 is substantially identical to the cross-section of the head 11, such that the blade 15 when secured to the head 11 in a manner to be described will provide one continuous unit. The blade 15 has axially formed therein a cavity 16, extending throughout the length of the blade 15. If desired, the cavity 16 may terminate before the end 17 of the blade 15, but in that event the blade 15 must be transparent, such that when the bulb 13 is energized, the illumination may be diffused about the end of the blade 15, in order to provide illumination in the oropharyngeal cavity being examined.

The blade 15 is secured to the head 11 by inserting the rod 14 in the cavity 16 until the top 18 of the blade 15 abuts against the bottom 19 of the head 11. The blade 15 may be maintained in engagement with the head 11 in any well-known manner. For example, the head 11 may have attached thereto springs 20 in the form of clips which exert pressure on the blade 15 in order to maintain engagement with the head 11. Another method of detachably securing the blade 15 to the head 11 is to form the cavity 16 with a light taper, such that the diameter of the cavity 16 decreases as the cavity 16 approaches the end 17 of the blade 15. In this manner, when the rod 14 is inserted into the cavity 16, it will become slightly wedged therein due to the taper of the cavity 16, this wedging action serving to keep the blade 15 axially abutting against the end 19 of the head 11.

It is to be noted that the cavity 16 need not be positioned as to extend axially through the blade 15. The cavity if desired may be formed on the side of the blade 15.
The interior of the head 11 is recessed to provide a chamber 21, which is adapted to have removably received therein a battery or other power source 22. The battery 22 is preferably of the cadmium nickel type, or other rechargeable type of battery. The base of the chamber 21 is provided with contacts 23, which are connected by means of wires 24 with the filament 12. Between one contact 23 and its associated wire 24, there is interposed a switch 25, which is mounted on the exterior surface of one of the walls of the head 11. The purpose of the switch 25 is to enable the physician or other user of the tongue depressor of the present invention to selectively illuminate the bulb 13.

The switch 25 is preferably of the double pole, double throw type. Thus, in one position, the switch 25 connects the battery 22 with the filament 12 to energize the light 13. In the other position of the switch 25, the battery 23 is connected with the contacts 26 of a female plug 27.

When not in use, the head 11 is thereby adapted to be connected with any source of energy by means of the plug 27, in order to recharge the battery 22. The chamber 21 is closed by means of a removable plate 28, which permits removal and replacement of the battery 23.

In operation, when the physician or other technician desires to use the disposable tongue depressor of the present invention, the rod 14 enclosing the filament 12 and the bulb 13, is inserted in the cavity 16 in the blade 15 until the end 19 of the head 11 abuts against the top 18 of the blade 15. The springs 20 bear against the edges of the blade 15 and thereby maintain the blade 15 in axial alignment with the head 11.

When the physician has finished using the tongue depressor of the present invention, the blade 15 is detached from the head 11 and discarded. If desired, the blade 15 may be automatically detached from the head 11, so that the physician need not handle the blade 15. For this purpose, the head 11 is provided with a plunger 29, which is adapted to slide in a bore 30, provided adjacent one side of the head 11. The bore 30 is so arranged such that the plunger 29 when not in use is completely encased in the head 11. The plunger 29 is provided with a knob 31 which protrudes through the bore 30 exteriorly of the surface of the head 11. When the physician is finished using the disposable tongue depressor of the present invention, the knob 31 is simply moved in a forward direction, thereby extending the rod 29. When the rod 29 is extended, it forces the blade 15 away from the end 19 of the head 11 and thereby permits disposal of the blade 15 automatically without any necessity for the fingers of the operator to touch the blade 15 after use. If desired, the plunger may be spring biased to forcibly eject the blade 15.

References Cited

UNITED STATES PATENTS
339,754 4/1886 Poote 128—16
949,236 2/1910 Kaplan et al. 128—18
2,225,405 12/1940 Osterman 128—6.46
2,289,226 7/1942 Von Foregner 128—16
2,858,537 5/1959 Wood 128—16 X
2,911,968 11/1959 Schueler et al. 128—6

FOREIGN PATENTS
1,118,877 6/1956 France.

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