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GROOVED TONGUE DEPRESSOR

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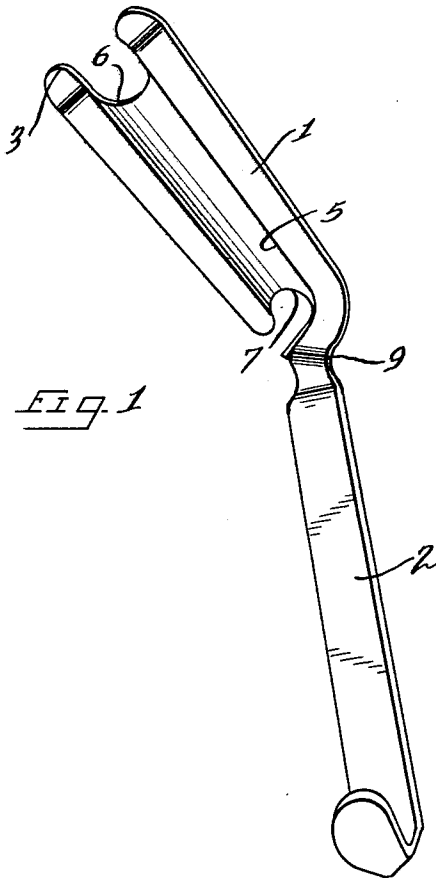


Fig. 1

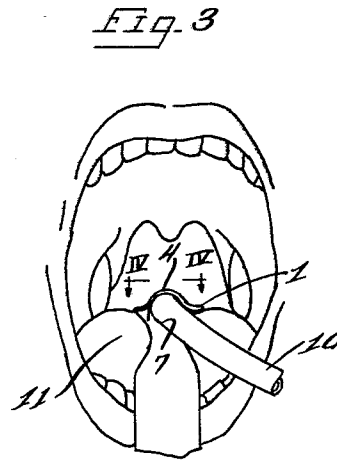


Fig. 3

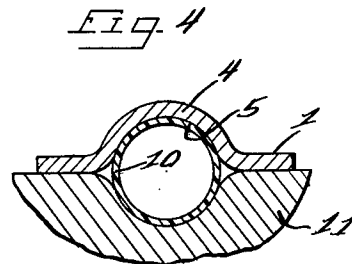


Fig. 4

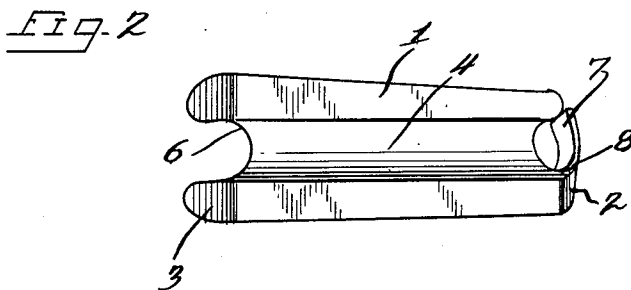


Fig. 2

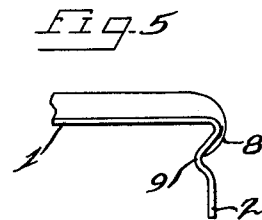


Fig. 5

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GROOVED TONGUE DEPRESSOR

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7 Claims. (Cl. 128—15)

This invention relates to improvements in a tongue depressor, and more particularly to a tongue depressor readily usable with substantially any commonly known type of mouth-gag, the invention being highly desirable for use in connection with oral surgery where anesthesia is administered by way of endotracheal intubation, although the invention will be of advantage for other uses and purposes as will be apparent to one skilled in the art.

In the performance of oral operations, most surgeons find it advantageous to utilize a mouth-gag equipped with a tongue depressor to maintain the mouth open and the tongue depressed and held forward. Most frequently it is preferred to administer anesthesia by way of endotracheal intubation and this, of course, requires a connection between the blade of the tongue depressor and the endotracheal tube. Various forms of tongue depressors have been manufactured in the past embodying different structures whereby the blade of the tongue depressor might properly be associated with an endotracheal tube. These formerly known tongue depressors have proven highly objectionable to the operating surgeons, however, for various reasons. One of the main objections was the fact that in order to properly connect the blade of the tongue depressor with an endotracheal tube, it was necessary that the tube be positioned within the patient's trachea but disconnected from the anesthesia administering apparatus while the tongue depressor was connected to the tube. This embodied the risk of dislodging the endotracheal tube, forcing it farther down into the trachea, or abrading the trachea by excess manipulation of the tube. Also, these formerly known tongue depressors resulted in a pinching of the endotracheal tube, insufficiently held the tube against slipping, and either the tongue blade, the tube, or both objectionably obstructed the surgeon's vision, or occupied the operative field to an objectionable extent.

With the foregoing in mind, it is an important object of the instant invention to provide a tongue depressor so constructed that it may readily be positioned in the patient's mouth and associated with an endotracheal tube already positioned without the necessity of moving the tube or disconnecting it from the anesthesia administering apparatus.

Also an object of this invention is the provision of a tongue depressor having a blade arranged to hold an endotracheal tube securely in proper position during an oral operation.

Also a feature of this invention is the provision of a tongue depressor having a blade capable of holding an endotracheal tube in proper position during an operation, but so constructed that even extremely soft tubes will not collapse under the necessary pressure applied to the tongue blade.

It is also a desideratum of this invention to provide a tongue depressor which does not obstruct a surgeon's vision when in use, and which maintains an endotracheal tube in proper position out of the field of operation and in such location that the vision of the surgeon is unobstructed.

Still another object of this invention is the provision of a tongue depressor having a blade with a groove extending longitudinally thereof to receive an endotracheal tube, the blade having notches at each end of the groove so

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that it may be easily slipped into engagement with a positioned tube.

Another important feature of the instant invention is the provision of a tongue depressor having a blade provided with a groove extending the full length thereof, with a lateral notch leading to an end of the groove to facilitate positioning of the blade over and in holding relationship with an endotracheal tube.

While some of the more salient features, characteristics and advantages of the instant invention have been above pointed out, others will become apparent from the following disclosures, taken in conjunction with the accompanying drawing, in which:

FIGURE 1 is a perspective view showing the underside of a tongue depressor embodying principles of the instant invention;

FIGURE 2 is a top plan view of the tongue depressor;

FIGURE 3 is a fragmentary diagrammatic view illustrating the tongue depressor associated with an endotracheal tube positioned in the mouth of the patient;

FIGURE 4 is a greatly enlarged fragmentary transverse sectional view taken substantially as indicated by the line IV—IV of FIGURE 3, looking in the direction of the arrows; and

FIGURE 5 is a fragmentary side elevational view of the depressor.

As shown on the drawings:

The illustrated embodiment of the instant invention comprises an L-shaped structure including a lateral tongue blade 1 and a depending arm or shank 2 connected substantially at a right angle to one end of the tongue blade. The arm or shank 2 may be arranged in any suitable manner for connection to any of the well known mouth gags, such as the Dingman, Davis, McIvor, Jennings mouth gags or the like.

The tongue blade 1 is generally spatulate in shape with the free or inner end thereof curved downwardly as indicated at 3 to engage the rear portion of the tongue. Extending longitudinally of the tongue blade and centrally thereof is an upstanding hollow bead formation 4 which defines a groove 5 on the underside of the blade for the reception of an endotracheal tube. It is preferable that the groove 5 extends the full length of the tongue blade as illustrated. The free or inner end of the tongue blade is provided with a notch 6 in the downwardly curved portion 3 of the blade leading to the groove and enabling the tongue blade to be seated over a tube already positioned in a patient's trachea. Adjacent the bend of the L-shaped structure, and substantially in the upper end of the arm or shank 2 a laterally extending notch 7 leading from the side of the device to the groove is provided. This notch is so positioned that the groove itself opens substantially through the upper end of the arm 2 as seen in FIGURE 2. Since the notch 7 narrows the connection between the blade and arm at the bend of the structure, the bead formation 4 is carried around the bend opposite the notch as indicated at 8 so as to provide more than adequate strength and rigidity at the connection between the arm and blade.

An S-curve formation 9 may be provided in the arm 2 below the bend, if so desired, for the purpose of facilitating connection with a mouth gag.

The instant invention may be properly positioned with ease and facility and is extremely effective in operation. Assuming, for example, that endotracheal intubation has already been established with a tube 10 as diagrammatically shown in FIGURE 3, and the tube already connected with anesthesia administering apparatus, it is a simple expedient to engage the blade 1 of the depressor with the tongue 11 of the patient by seating the blade 1 on the tongue with the tube received in the notch 6 at the inner end of the blade. The depressor may then be moved

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sidewise a trifle so that the tube 10 enters the notch 7, seating within the groove 5, and then adequate pressure may be applied to position and hold the tongue as desired. The operation of positioning the tongue blade is extremely quickly accomplished without the necessity of moving or disconnecting the endotracheal tube 10, eliminating any danger of pushing the tube into the trachea, or abrading or irritating the trachea by manipulation of the tube.

As is apparent from the enlarged showing in FIGURE 4, the groove 5 in the blade 1 contacts between one-third and one-half of the circumference of the endotracheal tube 10 and that is quite sufficient to prevent even very soft tubes from collapsing under the pressures applied to the depressor. It will be noted that the tube is effectively held in position between the blade 1 and the tongue 11 of the patient, and the tube at the outer end of the blade extends sidewise as seen in FIGURE 3, and the vision of the operating surgeon remains unobstructed by either the tube or the depressor. It will also be noted that the tube cannot be pinched by pressure from the tongue blade either at the front of the mouth where the tube crosses the teeth, in the middle of the blade where most pressure is applied, or at the back of the tongue where the tube curves to enter the trachea. During an operation, the blade effectively holds the tube against lateral slipping and the tube cannot become displaced but is held immobile while the operation proceeds. After completion of the operation, the tongue depressor may be easily removed, again with no movement of the endotracheal tube or no need for its disconnection from the anesthesia administering apparatus.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

I claim as my invention:

1. In a tongue depressor,
 - a spatulate blade to bear on the tongue,
 - a hollow bead formation extending longitudinally of said blade and forming a downwardly opening groove,
 - a shank depending from one end of said blade at substantially a right angle,
 - said groove extending the full length of said blade and opening through said shank,
 - said shank having a transverse slot communicating with said groove, and
 - said blade having a slot at the free end thereof leading to said groove,

whereby an endotracheal tube may be placed in said groove through said slots and held by said blade.

2. In a tongue depressor,
 - a one-piece generally L-shaped structure comprising
 - a lateral spatulate blade, and
 - a vertical shank,
 - a hollow transversely arcuate bead formation lengthwise of said blade defining an open groove on the underside of said blade,
 - said shank having a transverse slot communicating with said groove, and
 - a part of said bead formation opposite said slot extending past the union of the slot and groove and merging into said shank to provide adequate strength at the angle of the L-shaped structure.

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3. In a tongue depressor,
 - a generally L-shaped structure comprising
 - a lateral spatulate tongue blade having a central groove extending lengthwise of its underside, and
 - a vertical shank having a transverse notch at its upper end leading to said groove.
4. In a tongue depressor,
 - a one-piece generally L-shaped structure comprising
 - a lateral spatulate tongue blade having a groove extending lengthwise of its underside through the angle of the L-shaped structure, and
 - a vertical shank having an opening at the termination of said groove.
5. In a tongue depressor,
 - a one-piece generally L-shaped structure comprising
 - a lateral spatulate tongue blade having a groove extending lengthwise of its underside, and
 - a vertical shank,
 - said structure having a slot therein leading to each end of said groove.
6. In a tongue depressor,
 - a spatulate tongue blade having a groove extending longitudinally and centrally thereof,
 - an arm connected at one end to one end of said blade, said blade having a centrally disposed notch at its free end leading to said groove, and
 - there being a laterally extending notch leading from one side of said blade to said groove adjacent the junction between said blade and said arm.
7. In a tongue depressor,
 - a one-piece generally L-shaped structure comprising
 - an elongated spatulate blade to bear on the tongue,
 - a hollow bead formation extending longitudinally of said blade centrally thereof defining a downwardly open groove,
 - a shank depending from one end of said blade at substantially a right angle thereto,
 - said groove extending through said shank,
 - said shank having a transverse notch therein leading to said groove,
 - said blade having a notch in the other end thereof at said groove,
 - and the portion of said blade on each side of said groove adjacent the blade notch being downwardly inclined,

whereby said depressor may be engaged with an endotracheal tube already positioned in a patient and hold said tube in said groove without maladjustment of the tube.

References Cited in the file of this patent

UNITED STATES PATENTS

1,396,933	Jacoby	Nov. 15, 1921
1,613,373	Beck	Jan. 4, 1927
2,756,742	Barton	July 31, 1956

FOREIGN PATENTS

206,542	Switzerland	Nov. 16, 1939
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OTHER REFERENCES

Mueller Catalog of Mueller & Co., Chicago (1938), page 119, Figs. A-6695 and A-6697 relied on.