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R. J. McIVOR

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ORAL SPECULUM

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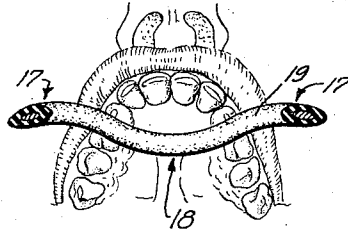


FIG. 3.

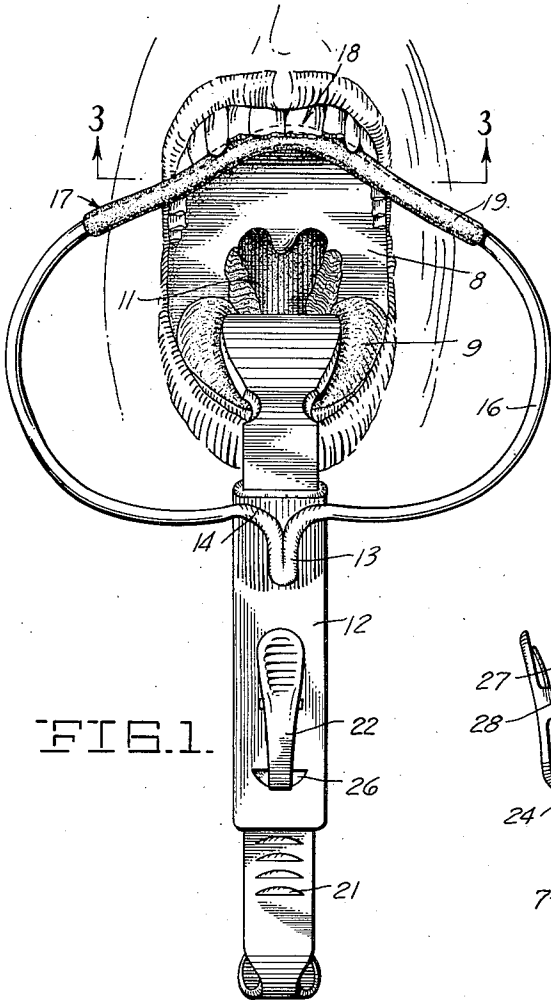


FIG. 1.

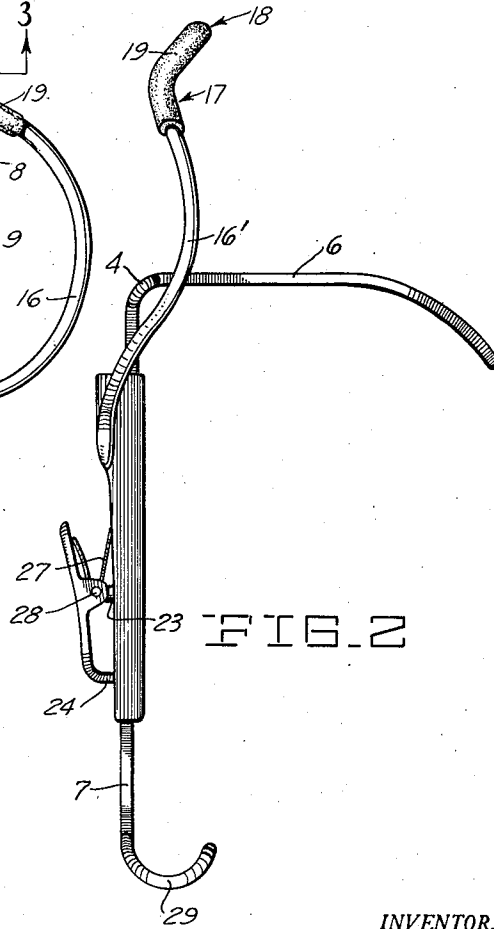


FIG. 2.

INVENTOR.
ROBERT J. McIVOR
BY *Gardner & Warren*
his attys.

UNITED STATES PATENT OFFICE

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ORAL SPECULUM

Robert J. McIvor, Piedmont, Calif.

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3 Claims. (Cl. 128—12)

1

This invention relates to instruments used in propping the jaws open and in depressing the tongue during extended oral inspections or operations.

It is an object of the invention to provide an oral speculum designed to afford improved protection to the patient's teeth against any cracking or chipping thereof, which may occur in the use of conventional devices of this nature during sudden unconscious muscular contractions or convulsions which usually occur when the patient is under general anesthesia, and which will afford equal protection against traumatization of the mouth tissue which the comparatively sharp edges and corners of presently available devices of this class are capable of causing.

Another object of the invention is to provide a device of the character described designed to afford a minimum of obstruction to the view into the oral cavity or to the manipulation of instruments therein or adjacent to the cavity.

A further object of the invention is to provide an oral speculum composed of a minimum number of parts so constructed that they may be easily kept thoroughly clean and sterile.

Still another object of the invention is to provide a device of the nature referred to which will permit of a certain degree of positional adjustment in the oral cavity without sacrificing any of its efficiency as a jaw prop and tongue depressor.

The invention possesses other objects and features of advantage which, together with the foregoing will be specifically set forth in the detailed description of the invention hereunto annexed. It is to be understood that the invention is not to be limited to the particular form thereof herein shown and described as various other embodiments thereof may be employed which come within the scope of the appended claims.

Referring to the drawing:

Figure 1 is a front perspective view of the speculum of my invention as applied to a patient's mouth.

Figure 2 is a side elevational view of the speculum alone.

Figure 3 is a horizontal sectional taken in the plane, and in the direction, indicated by the line 3—3 of Figure 1.

The structure shown in Figure 1 comprises a unitary piece of sheet metal provided with a medial bend 4 to form a substantially horizontal spatula portion 6 and a substantially perpendicular shank portion 7. The spatula or depressor 6, which is adapted to enter the oral cavity 8 in superposed relation above the tongue 9, is formed, in top plan aspect, as an elongated oval, narrower

2

to a certain degree than the tongue and in side elevational aspect, as shown in Figure 2, is shaped with a flat frontal portion adjacent the bend 4 and with a downwardly curved rear portion for approaching or entering the throat 11. Such shaping of the spatula provides for comfortable conformation thereof to the patient's tongue when the latter is forcibly depressed and also causes the forward and sidewise displacement of the tissue at the base of the tongue, which is desirable to provide the maximum opening of the throat and to reduce visual obstructions, without causing undue or uncomfortable crowding of the tissue.

On the shank portion 7, is mounted for slidable movement a sleeve 12 to which is attached, at the latter's top end, an upper jaw engagement member comprising a piece of comparatively stiff recoillable wire formed into a closed loop and having its joined ends suitably bonded, by a weld or braze 13, to the sleeve 12. The shape of the upper jaw loop is rather complex and may best be described when viewed successively from front and side elevational aspects. In the former aspect, as shown in Figure 1, the loop is symmetrical about its vertical centerline and the wire is provided with a comparatively sharp upward and outward bend 14, adjacent the weld 13, which is continued upwardly and outwardly as a sweeping entrant bend 16 merging into a straight tangential portion 17 which rises angularly toward the centerline and continues into an upwardly protruding apex portion 18 intersecting the centerline. In the latter aspect, the wire, forming the sections of the loop lying on the respective sides of the vertical centerline of Figure 1, is bent correspondingly and curves rearwardly from the weld 13 in an entrant curve 16' which continues into the straight portion 17 and thence is abruptly bent angularly rearwardly to form the apex portion 18. Both the apex portion 18, and the loop portions extending laterally therebeyond, are covered with a section 19 of soft rubber tubing or other similar material possessing resilient characteristics. The formation of the loop is such that, when the spatula 6 is properly placed on the patient's tongue and the sleeve 12 is elevated along the shank portion 7, the corresponding portions of apex 18 of the loop will engage the upper jaw at the interstitial recesses between the canine and first molar teeth on each side of the mouth and the bends 16 will lie substantially against the patient's cheeks. This will place the parts of the speculum back out of the way where they will not interfere with the free use of examining or operational instruments in or around the oral cavity and will provide upper bearing points which are materially stronger

than the incisor bearing points employed by conventional specula. During an operation, when the patient is under general anesthesia, muscular twitching and forceful contractions may occur which, when conventional types of specula are used, may cause chipping and cracking of the teeth engaging the speculum and often severe traumatization and bruising of the mouth tissue. Such injuries may be caused, in the case of the teeth, by abnormal pressure of the latter against unyielding surfaces or comparatively sharp protuberances of the device, by faulty design and distribution of bearing points in the speculum used, or by lateral movements of the jaws relative to each other and to the speculum. Flesh wounds may likewise occur by accidental pinching of tissue between the speculum and the teeth or by abrasion caused by comparatively sharp edges or corners of the device rubbing with severe pressure against the flesh.

In the device of my invention, positioning of the upper jaw engaging loop comparatively far back in the patient's mouth, and engaging the natural notches existing between the opposite canine teeth and the adjacent first molar teeth, brings the upper jaw contact points and the lower jaw contact point, where the spatula bears most fully against the tongue, more nearly into vertically aligned relationship than is the case in any other speculum of which I am aware. In the types of specula now available, the major tongue contact occurs deep back in the mouth but the upper jaw engagement occurs relatively far forward and usually in the group of relatively weak frontal teeth between the canine teeth. Should a patient wearing a device of this type clench his jaws, the resultant rocking force on the upper contact point, about the contact point on the tongue as a fulcrum, will be in a direction generally forwardly and outwardly of the mouth and transversely of the frontal teeth. Such stresses are frequently sufficiently severe as to dangerously loosen the teeth in their sockets and to crack or chip the tooth enamel. The positioning of the loop at the points mentioned overcomes this tooth-damaging tendency and it is further reduced by the presence of the pressure absorbing resilient covering 19 of the loop. Tissue protection in the device is afforded by the absence of all sharp edges and corners which might cause damage. Furthermore, the loop form of the device gives the speculum a certain degree of vertical compressibility valuable in gently but firmly resisting muscular contractions.

Means is provided for securing the sleeve 12 to the shank portion 7 so that the speculum may be locked in any of the several positions of extension. Formed in the front surface of the shank portion are spaced notches 21, having inclined upper sides, which cooperate with a latch lever 22 pivoted on a bracket 23, carried by the sleeve 12, and pivoted with an intumed dog portion 24 which passes through an aperture 26 formed in the sleeve to engage one of the notches 21. A retorsely bent leaf spring 27 engaging the pivot pin 28 and bearing against the latch lever 22 and the sleeve 12 respectively serves to forcibly maintain engagement of the dog 24 with a notch 21. To facilitate gripping of the speculum so that the sleeve may be slid upwardly along the shank portion, in extending the loop relation to the spatula, I provide a hook-shaped finger hold 29 at and formed integrally with the lower end of the shank portion.

The speculum of my invention above described

has been reduced to the ultimate of practical simplicity, is capable of providing more instrument and observational clearance than similar presently employed devices of this nature, and is capable of easy cleaning and sterilization.

Having thus described by invention in detail what I claim as new and desired to secure by Letters Patent is:

1. In an oral speculum, a tongue-engaging spatula having a dependent shank portion, an element slidable on said shank portion, means to secure said element and shank portion together in various positions of relative movement, and an upper-jaw engaging member carried by said element and extending above said spatula, said upper jaw engaging member being so formed and positioned relative to said spatula that when the latter is in proper position on the tongue the said member will traverse and engage the upper jaw along a substantially straight line over the opposite interstitial recesses between the canine and first molar teeth.

2. In an oral speculum, a tongue-engaging spatula having a dependent shank portion, an element movable relative to said shank portion, means to secure said element and shank portion together in various positions of relative movement, and an upper jaw engaging member carried by said element and extending above said spatula, comprising a loop of recoilable material having an oblique portion thereof engageable, when the spatula is in proper position on the tongue, with the upper jaw over the interstitial recesses between the canine and first molar teeth, said loop having portions extending laterally to substantially engage the cheeks beyond the transverse borders of the oral cavity, and a yieldable member associated with said loop in the tooth-engaging portions thereof and in the laterally extending portions thereof.

3. In an oral speculum, a tongue-engaging spatula having a dependent shank portion, an element slidable on said shank portions, means to secure said element and shank portion together in various positions of relative movement, and an upper jaw engaging member carried by said element and extending above said spatula, comprising a loop of recoilable material having an oblique portion thereof traversing and engageable, when the spatula is in proper position on the tongue, with the upper jaw over the interstitial recesses between the canine and first molar teeth, said loop having portions extending laterally to substantially engage the cheeks beyond the transverse borders of the oral cavity, and a sleeve of yieldable material enclosing the tooth-engaging portions of said loop and projecting into the laterally extending portions thereof.

ROBERT J. McIVOR.

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