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3,148,449

TONGUE GUARD FOR DENTAL APPLIANCES

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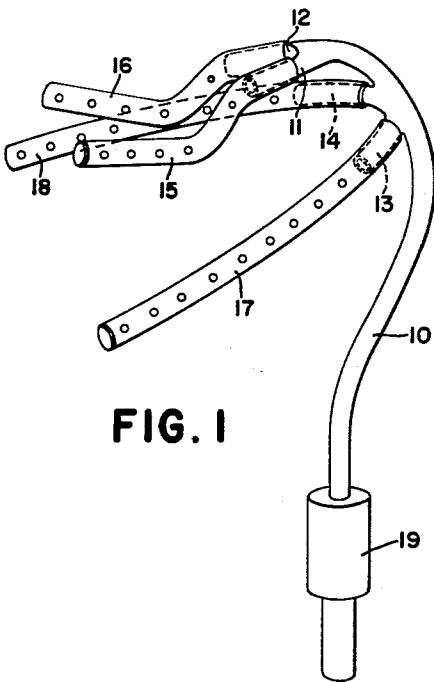


FIG. 1

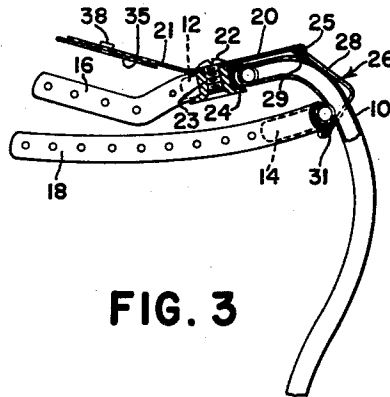


FIG. 3

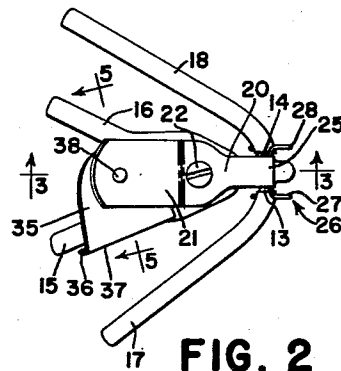


FIG. 2

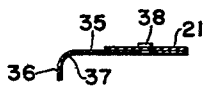


FIG. 5

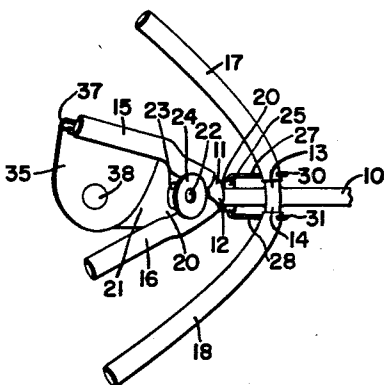


FIG. 4

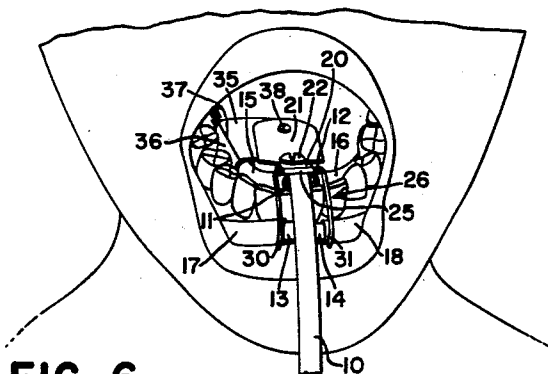


FIG. 6

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TONGUE GUARD FOR DENTAL APPLIANCES
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This invention relates to dental appliances and more particularly to a tongue depressor and guard to hold and control the tongue while a patient is undergoing dental treatment.

In a pending application for a Mouth Evacuator, Serial No. 21,340, filed April 11, 1960, there is shown and described a mouth evacuator having a metal suction tube adapted to extend over the lower teeth. The tube has a pair of diverging stems interior of the teeth and extending to opposite sides of the mouth. Also, there is provided a pair of diverging stems exterior of the teeth and extending on opposite sides of the mouth. Slidably supported on the stem are flexible tubular extensions which extend to various portions of the mouth and are perforated for purpose of clearing the mouth to maintain it both dry and clean.

It is one of the main purposes of the present invention to provide a tongue depressor and guard which is attachable to the above described evacuator so that both the guard and evacuator becomes a rigid or unitary assembly. The patient may control the assembly relative to its placement by moving the main suction tube or stem which depends from the mouth. Through this control the patient may maintain maximum comfort. However, it should be understood that the control of the evacuator and guard is not a continuous operation. Generally, once properly placed in the mouth, the combination will remain properly placed, since, due to the basic shape or form of the evacuator it will retain the desired position in the mouth.

It is also the object of the present invention to provide a tongue guard and depressor of simple design which may be adjusted so that dental work may be done on either the right side, left side, or front of the mouth. The main guard is a plate disposed above the tongue and supported on a vertical axis. One edge of the plate has a depending flange. The plate may be swiveled so that the flange may lie against the tongue on the side of the mouth on which the dental work is being done. Placing the flange on only one side gives further benefit since it will tend to guide the tongue to the opposite side of the mouth, thereby avoiding the side on which the work is being done.

It is further object of the invention to provide means for attaching the tongue guard to the evacuator which is easily adapted for attachment or detachment and further is effective to operate as means of locking or preventing the flexible tubular extensions from sliding off the stems.

Other objects and advantages of the present invention will become apparent to those skilled in the art as the nature of the invention is better understood from the following description and as shown in the accompanying drawings.

FIGURE 1 is a side perspective view of the dental suction appliance without the tongue depressor and guard attached thereto.

FIGURE 2 is a top plan view of the suction appliance with the tongue depressor and guard attached thereto.

FIGURE 3 is a sectional view taken along the line 3—3 of FIGURE 2.

FIGURE 4 is a bottom view of the suction appliance with the tongue depressor and guard attached thereto.

FIGURE 5 is a sectional view taken substantially along the line 5—5 of FIGURE 2.

FIGURE 6 is a perspective view looking into the

mouth of a human and showing use of the suction appliance and the tongue depressor and guard attachment.

Referring now to the drawings, the suction appliance is generally of the type shown and described in the aforementioned pending application, Serial No. 21,340. The appliance comprises a main rigid or metal stem 10 which is balanced to depend from the front of the mouth, the upper end being angulated to extend over and to rest on the biting edge or ridge of the lower teeth. Beyond the angulation, the stem terminates into a pair of integral laterally extending and oppositely directed and diverging tubular stems 11, 12 which are positioned to lie interiorly of and slightly below the biting edges of the lower teeth. The main stem 10 is provided with a pair of integral laterally extending and oppositely extending and diverging tubular stems 13, 14 which are positioned to lie exteriorly of and beneath the biting edge of the lower front teeth. There are mounted on the stems 11—14 soft flexible non-toxic perforated rubber or plastic extensions 15, 16, 17, 18 respectively closed and rounded at their ends to prevent irritation and disposed above the floor of the mouth. As may be seen from viewing FIGURE 6, the stem sections 11, 12 and the tubular extensions 15, 16 are directed toward the sulcus on each side of the tongue and the stem sections 13, 14 and tubular extensions 17, 18 are directed toward the sulcus formed between the cheek and lower teeth on each side of the mouth. The lower end of the main stem 10 is provided with an adaptor 19 for attachment to a suction hose, not shown.

The tongue depressor and guard is composed of a main laterally disposed flat metal piece or guard support 20 overlying the diverging stems 11, 12. The guard support 20 has an upwardly inclined (as viewed in FIGURE 3) plate portion 21 disposed interiorly of the teeth and over the tongue. Depending from the metal piece 20 and fixed thereto by a screw 22 is a metal button 23 having an annular metal flange 24 which fits beneath the underside of the bifurcated stems 11, 12. As will later become apparent, the button 23 and the annular flange 24 will operate as an abutment and will grip the inner ends of the tubular extensions 15, 16 and when the entire guard is in the desired operating position will lock or prevent the extensions from slipping off their respective stems 11, 12. The abutment button 23 and flange 24 may be knurled to prevent slippage.

The end of the metal piece 20 is rolled, as at 25, to operate as a transverse hinge for a spring or biasing member 26. The spring member 26 is composed of a one-piece metal rod of spring steel formed to have a pair of leg sections 27, 28 disposed on opposite sides of the main stem 10 and joined together by a bight portion 29 which swivels vertically in the hinge 25. The leg sections 27, 28 have substantially right-angle bends therein with lower or depending ends 30, 31 respectively adapted to snap behind and under the bifurcated stems 13, 14, or more precisely behind the ends of the tubular extensions 17, 18 mounted on the stems 13, 14. The lower ends 30, 31 of the spring member 26 operate to lock the extensions 17, 18 against sliding.

As may be readily apparent by viewing the drawings, the tongue guard may be attached to the suction appliance by inserting the abutment button 23 between and against the tubular extensions 15, 16 on the stems 11, 12 and by snapping the spring legs 27, 28 beneath the portions of the tubular extensions 17, 18 on the stems 13, 14. The spring legs 27, 28 operate as biasing means to maintain the abutment button 23 against stems 11, 12. Removal of the tongue guard is in reverse procedure. When snapped in position, the entire support 20 becomes rigid with the tube 10.

Mounted on the inclined section 21 is a tongue engaging plate 35 laterally disposed and lying adjacent the

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underside of the section 21. One edge 36 of the plate 35 is flanged downwardly. The flanged edge 36 has its juncture corner 37 with the main portion of the section 21 rounded so as to prevent irritation of the adjacent tissues. The metal section 21 and the plate 35 are pivotally connected by a rivet type member 38 which has its underside flanged in countersunk fashion to fit in a countersunk opening in the underside of the tongue plate 35. Consequently, the pivot member 35 has no rough surface to contact the top of the tongue.

The desired position of the tongue plate depends, of course, upon which side of the mouth dental work is to be done. The depending flanged edge 36 will normally be against the edge of the tongue next to the teeth to be worked. Also, should the evacuator enter the mouth from one side, the plate 35 may be swiveled to protect the front or either side edge of the tongue. The lateral portion of the plate 35 will lay on top of and slightly depress the tongue.

While only one form of the invention has been shown, it should be recognized that other forms and variations will occur to those skilled in the art. Therefore, while the present form was shown and described in detail for the purpose of clearly and concisely illustrating the principles of the invention, it was not the intention to limit or narrow the invention beyond the broad concept set forth in the appended claims.

What is claimed is:

1. The combination of a suction device and a tongue depressor and guard comprising a rigid suction tube adapted to extend over the lower teeth with a pair of diverging stems interior of the teeth and extending to opposite sides of the mouth and a pair of diverging stems exterior of the teeth and extending to opposite sides of the mouth; flexible tubular extensions slidably supported on the stems; a plate support having a portion thereof disposed above the rigid suction tube with one end terminating between the interior and exterior pairs of stems and having a transverse hinge thereon, said plate support extending from the end to a plate portion adapted to be located interior of the mouth and disposed over the tongue; an abutment depending from the underside of the plate support interiorly of and adjacent the interior pair of stems, said abutment having a lateral flange disposed beneath the latter pair of stems; a U-shaped element composed of spring steel having a bight portion supported on said transverse hinge and having a pair of leg portions extending from said hinge on opposite sides of the suction tube, and each of said leg portions having a depending end section removably snapped behind a respective exterior stem to effect a biasing action on the abutment against the interior stems whereby the abutment will engage the flexible extension on the stems and hold the latter against sliding and said depending end sections will engage the flexible extensions on the exterior stems to hold the latter against sliding; a vertical pivot on the plate portion adapted to overlie the tongue; and a plate extension mounted on and adapted to swivel on the pivot and having a depending edge flange adapted to lie adjacent an edge of the tongue.

2. The combination of a suction device and a tongue depressor and guard comprising a rigid suction tube adapted to extend over the lower teeth with a pair of diverging stems interior of the teeth and extending to opposite sides of the mouth and a pair of diverging stems exterior of the teeth and extending to opposite sides of the mouth; a plate support having a portion thereof disposed above the rigid suction tube with one end terminating between the interior and exterior pairs of stems and having a transverse hinge thereon, said plate support extending from the end to a plate portion adapted to be located interior of the mouth and disposed over the tongue; an abutment depending from the underside of the plate support interiorly of and adjacent the interior pair of stems, said abutment having a lateral flange dis-

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posed beneath the latter pair of stems; a U-shaped element composed of spring steel having a bight portion supported on said transverse hinge and having a pair of leg portions extending from said hinge on opposite sides of the suction tube, and each of said leg portions having a depending end section removably snapped behind a respective exterior stem to effect a biasing action on the abutment against the interior stems; a vertical pivot on the plate portion adapted to overlie the tongue; and a plate extension mounted on and adapted to swivel on the pivot and having a depending edge flange adapted to lie adjacent an edge of the tongue.

3. The combination of a suction device and a tongue depressor and guard comprising a rigid suction tube adapted to extend over the lower teeth with a pair of diverging stems interior of the teeth and extending to opposite sides of the mouth and a pair of diverging stems exterior of the teeth and extending to opposite sides of the mouth; a plate support having a portion thereof disposed above the rigid suction tube with one end terminating between the interior and exterior pairs of stems and having a transverse hinge thereon, said plate support extending from the end to a plate portion adapted to be located interior of the mouth and disposed over the tongue; an abutment depending from the underside of the plate support interiorly of and adjacent the interior pair of stems; and a U-shaped element composed of spring steel having a bight portion supported on said transverse hinge and having a pair of leg portions extending from said hinge on opposite sides of the suction tube, and each of said leg portions having a depending end section removably snapped behind a respective exterior stem to effect a biasing action on the abutment against the interior stems.

4. In a dental appliance including a mouth evacuator for removing saliva and other materials from the mouth and wherein there is provided a rigid suction tube adapted to extend over the lower teeth and having a pair of diverging stems interior of the teeth and extending to opposite sides of the mouth and a pair of diverging stems exterior of the teeth and extending to opposite sides of the mouth, the combination therewith of a tongue depressor and guard comprising a plate support having a portion thereof adapted to be disposed above the rigid suction tube with one end terminating inwardly of the exterior pairs of stems, and to extend from the end to a plate portion adapted to lie interior of the mouth and over the tongue; an abutment depending from the underside of the plate support adapted for disposition interiorly of and adjacent the interior pair of stems; and a biasing element on the plate support removably connected to the exterior stem to effect a biasing action on the abutment against the interior stems.

5. In a dental appliance including a mouth evacuator for removing saliva and other materials from the mouth and wherein there is provided a rigid suction tube adapted to extend into the mouth and having diverging stems extending to opposite sides of the mouth, the combination therewith of a tongue depressor and guard comprising a plate support having a portion thereof adapted to be disposed above the rigid suction tube with one end terminating inwardly of the stems, and to extend from the end to a plate portion adapted to lie interior of the mouth and over the tongue; an abutment depending from the underside of the plate support adapted for disposition interiorly of and adjacent the diverging stems; and a biasing element on the plate support removably connected to the rigid suction tube to effect a biasing action on the abutment against the diverging stems.

6. The combination of a suction device and a tongue depressor and guard comprising a rigid suction tube adapted to extend over the lower teeth with a pair of diverging stems interior of the teeth and extending to opposite sides of the mouth and a pair of diverging stems exterior of the teeth and extending to opposite sides of the

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mouth; an elongated support having a portion thereof disposed above the rigid suction tube with one end terminating between the interior and exterior pairs of stems and having a transverse hinge thereon, said support extending from the end to an opposite end portion adapted to be located interior of the mouth and disposed over the tongue; an abutment depending from the underside of the support interiorly of and adjacent the interior pair of stems, said abutment member having a lateral flange disposed beneath the latter pair of stems; a U-shaped biasing element having a bight portion supported on said transverse hinge and having a pair of leg portions extending from said hinge on opposite sides of the suction tube, and each of said leg portions having a depending end section removably snapped behind a respective exterior stem to effect a biasing action on the abutment against the interior stems; a vertical pivot on said opposite end portion adapted to overlie the tongue; and a plate extension mounted on and adapted to swivel on the pivot and having a depending edge flange adapted to lie adjacent an edge of the tongue.

7. A tongue depressor and guard for use in combination with a rigid suction tube adapted to extend over the lower teeth and having a pair of diverging stems interior of the teeth and extending to opposite sides of the mouth and a pair of diverging stems exterior of the teeth and extending to opposite sides of the mouth, said tongue depressor and guard comprising: an elongated support having a portion thereof adapted to be disposed in the mouth above the rigid suction tube with one end terminating interiorly of the exterior pair of stems and having a transverse hinge thereon, said support extending from the end to an opposite end portion interior of the mouth; an abutment depending from the underside of the support interiorly of and adjacent the interior pair of stems; a spring element supported on said transverse hinge and extending from said hinge to an end section adapted to snap behind at least one of the exterior stems to effect a biasing action on the abutment against the interior stems; a vertical pivot on said opposite end portion; and a plate normally to be disposed over the tongue mounted on and adapted to swivel on the pivot and having a depending edge flange adapted to lie adjacent an edge of the tongue.

8. A tongue depressor and guard for use in combination with a rigid suction tube adapted to extend into the mouth and having diverging stems extending to opposite sides of the mouth, said tongue depressor and guard comprising: an elongated support having a portion thereof adapted to be disposed in the mouth above the rigid suction tube with one end terminating adjacent the mouth opening and extending from the end to an opposite end portion interior of the mouth; an abutment depending from the underside of the support adjacent the diverging stems; a biasing element extending from said one end and

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adapted for connection to said tube to effect a biasing action on the abutment against the diverging stems; a vertical pivot on said opposite end portion; and a plate normally to be disposed over the tongue mounted on and adapted to swivel on the pivot and having a vertically disposed depending edge flange adapted to lie adjacent an edge of the tongue.

9. In a dental appliance including a mouth evacuator for removing saliva and other materials from the mouth wherein a suction tube extends into the mouth, the combination therewith of a tongue depressor and guard comprising a plate support having a portion thereof adapted to be disposed in the mouth above the rigid suction tube with one end terminating adjacent the teeth and extending from the end to a plate portion interior of the teeth and disposed over the tongue; means on the support for mounting the support on the suction tube; a vertical pivot on the plate portion; and a plate extension normally to be disposed over the tongue mounted on and adapted to swivel on the pivot and having a vertically disposed depending edge flange adapted to lie adjacent an edge of the tongue.

10. In a dental appliance including a mouth evacuator for removing saliva and other materials from the mouth wherein a suction tube extends into the mouth, the combination therewith of a tongue depressor and guard comprising a plate support having a portion adapted to be disposed alongside the suction tube and to extend interiorly of the mouth; means on the support for detachably connecting the support to the tube; a vertical pivot on the support adapted to be located interiorly of the mouth; and a plate over the tongue mounted on and adapted to swivel on the pivot and having a vertically disposed depending flange adapted to lie adjacent an edge of the tongue.

11. In a dental appliance including a mouth evacuator for removing saliva and other materials from the mouth wherein a suction tube extends into the mouth, the combination therewith of a tongue depressor and guard comprising a plate support having a portion adapted to be disposed alongside the suction tube and to extend interiorly of the mouth; means on the support for detachably connecting the support to the tube; a vertical pivot on the support normally interiorly of the mouth; and a plate over the tongue mounted on and adapted to swivel on the pivot.

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