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3,426,430

SALIVA EJECTOR

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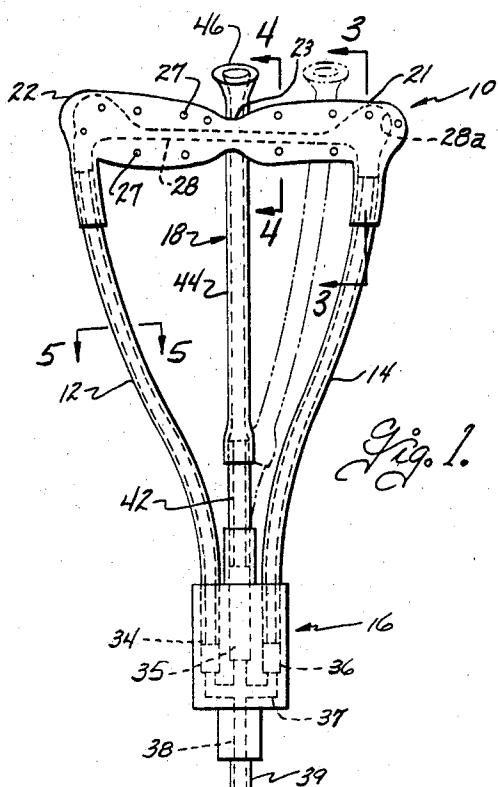


Fig. 1.

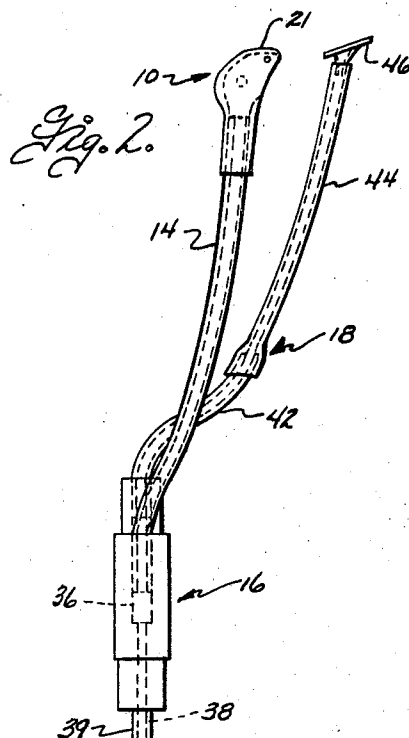


Fig. 2.

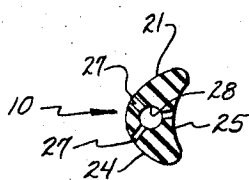


Fig. 4.

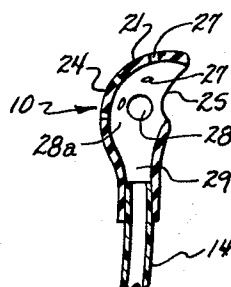


Fig. 3.



Fig. 5.

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1

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SALIVA EJECTOR

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ABSTRACT OF THE DISCLOSURE

A resilient member is shaped to lie in and collect saliva from the upper labial area of a patient's mouth. First and second suction tubes lead from the member to a manifold. A third suction tube extends from the manifold to a bell-shaped member which collects saliva from the roof of the mouth.

The present invention relates to a saliva ejector.

While the apparatus of the present invention may herein sometimes be referred to as evacuating saliva, it should be understood that this term includes other fluids which may be found in the mouth.

It is an object of the present invention to provide a saliva ejector for evacuating saliva from the labial area of a patient's mouth and shaped for accommodating the labial frenum.

Another object is to provide a saliva ejector for evacuating saliva from both the labial and lingual areas of a patient's mouth.

It is another object of the present invention to provide an apparatus for evacuating saliva from the upper portion of a patient's mouth during dental treatment.

Still another object is to provide a saliva ejector which is quickly and easily inserted in the patient's mouth and comfortable in place.

Yet another object is to provide a saliva ejector which provides a clear, unobstructed view of the patient's teeth and which greatly facilitates operation thereon.

A further object of the present invention is to provide a saliva ejector which is adaptable to various sized mouths.

Other objects and advantages of the present invention will become apparent as the same becomes better understood from the following detailed description when taken in conjunction with the accompanying drawings wherein:

FIGURE 1 is a front elevational view of an embodiment of the present invention;

FIGURE 2 is a side elevational view thereof; and

FIGURES 3, 4 and 5 are sectional views taken respectively along lines 3-3, 4-4, and 5-5 of FIG. 1 and on larger scales.

Reference is now made more particularly to the drawings wherein similar reference characters indicate the same parts throughout the several views.

A preferred embodiment of the present invention illustrated in the drawings includes a resilient member, generally designated 10, first and second suction tubes 12 and 14, attached at opposite ends of the resilient member and leading to a manifold, generally designated 16. A third suction tube, generally designated 18, is connected to the manifold intermediate the suction tubes 12 and 14 for a purpose which will hereinafter become apparent.

Resilient member 10 preferably extends generally the full length of the labial area of the patient's mouth. The resilient member is formed of a flexible material such as rubber or one of various synthetic resins. In this manner, it is comfortable in place and will conform to the patient's lip and gum shape. As best illustrated in FIG. 1, the resilient member has end portions 21 and 22 and a central portion 23. Central portion 23 preferably has a

2

reduced cross-sectional area to accommodate the patient's labial frenum and, in the embodiment illustrated, has its upper level disposed below the upper level of the end portions to accommodate the maxillary labial frenum.

The labial frenum is a little fold of membrane between the lip and the gum, there being a frenum on both the upper and lower lips. As shown in FIGS. 3 and 4, end portions 21 and 22 preferably have a generally convex side 24 for lying adjacent the patient's lip and a generally concave side 25 for lying adjacent the patient's gum. Concave side 25 is preferably shaped to provide a central portion disposed away from the patient's gum, thereby forming a channel for the saliva between the gum and said concave side. The end portions 21 and 22 preferably have a size so that they overlie only the patient's gum thereby leaving the teeth unobstructed for operation thereon. The resilient member is advantageously perforated as with a plurality of openings 27 through which saliva may flow and which communicate with a channel 28 extending generally the full length of the resilient member. Adjacent each end of the resilient member, the channel 28 is enlarged as indicated at 28a in FIG. 1 and shown in section in FIG. 3. The enlargement 28a advantageously opens into the concave side of the resilient member to receive saliva flowing in the channel between the gum and said concave side. Suction tubes 12 and 14 communicate with the enlargement 28a by means of a depending channel 29.

As stated above, suction tubes 12 and 14 are preferably secured to opposite end portions of the resilient member 10 and are thereby disposed adjacent opposite sides of the patient's mouth. Suction tubes 12 and 14 are advantageously flexible and each has a malleable wire element 32 (FIG. 5) disposed in the wall thereof and extending generally the full length of the tubes. In this manner, the tube may be deformed somewhat to accommodate various sized mouths, and the wire element will hold the tubes in the desired deformed position. The manifold 16 has a plurality of channels 34-36 for receiving saliva from saliva tubes 12, 14 and 18. A collector channel 37 communicates with an outlet channel 38 extending through an end portion 39 which may be connected to a source of vacuum (not shown) in any convenient manner.

The third suction tube, generally designated 18, preferably has a pivotal connection to the manifold 16. For this purpose, a lower portion 42 of the third suction tube is inserted in channel 35 and is pivotal therein. Portion 42 is advantageously formed of the same tubing as suction tubes 12 and 14. An upper portion 44, advantageously made of resilient material such as rubber, is attached to portion 42 and extends upwardly a sufficient distance to be disposed adjacent the roof of the patient's mouth when in use. A bell-shaped saliva collector 46 is attached to the upper end of section 44 for collecting saliva from the roof of the patient's mouth. In the embodiment illustrated, lower portion 42 is swingably connected to the manifold whereby the third suction tube can be swung to the side of the patient's mouth as illustrated in phantom in FIG. 1 to provide access into the mouth cavity as by dental instruments. When the saliva ejector is inserted in the patient's mouth, the resilient portion 44 allows the third tube to be bent if necessary, to provide ease in passing the patient's teeth.

It is now deemed obvious that the present invention provides a new and useful saliva ejector for evacuating saliva from both sides of a patient's teeth and yet provides an unobstructed view of the teeth for operation thereon. It is also deemed obvious that the saliva ejector of the present invention is adaptable to various sized mouths and yet is easily inserted into the mouth and is comfortable in place.

While a preferred embodiment of the invention is herein illustrated as described as being utilized with the upper portion of a patient's mouth, the principles of the invention, in its broader aspects, are not so limited and may be utilized in other embodiments of the invention. As a result, I do not wish to be limited except as required by the appended claims.

What is claimed is:

1. A saliva ejector including: suction tube means for carrying saliva and adapted for connection with a source of vacuum, a resilient member connected to the suction tube means and shaped for fitting in and extending generally the full length of the upper labial area of a patient's mouth, said resilient member being perforated and having a channel therein communicating with the suction tube means, and the resilient member having end portions and a central portion which has an upper level disposed below the upper level of the end portions to accommodate the patient's maxillary labial frenum.

2. A saliva ejector as set forth in claim 1 wherein the suction tube means includes first and second suction tubes attached to the resilient member adjacent opposite ends thereof whereby the first and second suction tubes are disposed adjacent opposite sides of the patient's mouth.

3. A saliva ejector as set forth in claim 2 wherein the first and second suction tubes are generally flexible and each has a malleable wire element disposed in the wall thereof and extending generally the full length of the tube whereby the first and second tubes are held in a desired position, and wherein the suction tube means includes a manifold for collecting saliva from the first and second suction tubes for discharge through a common opening.

4. A saliva ejector as set forth in claim 1 wherein the suction tube means includes: a manifold, at least one suction tube attached to the manifold and the resilient member, and another suction tube attached to the manifold; and including means on said other suction tube for collecting saliva from the roof of the patient's mouth.

5. A saliva ejector as set forth in claim 1 wherein the end portions of each have a generally convex side for lying adjacent the patient's lip and a generally concave side for lying adjacent the patient's gum, the suction tube means includes first and second suction tubes attached to opposite end portions of the resilient member whereby the first and second suction tubes are disposed adjacent opposite sides of the patient's mouth, said first and second suction tubes being generally flexible and each having a malleable wire element disposed in the wall thereof and extending generally the full length of the tube whereby the first and second suction tubes are held in a desired position, the suction tube means includes a manifold for collecting saliva from the first and second suction tubes for discharge through a common opening, a third suction tube pivotally attached to the manifold intermediate the first and second suction tubes, and said third suction tube having at least a portion thereof made of resilient material and a bell-shaped saliva collector at the upper end thereof for collecting saliva from the roof of a patient's mouth.

6. A saliva ejector including: suction tube means for carrying saliva and adapted for connection with a source

of vacuum, a resilient member connected to the suction tube means and shaped for fitting in the upper labial area of a patient's mouth, said resilient member being perforated and having a channel therein communicating with the suction tube means, the resilient member having a generally convex side for lying adjacent the patient's lip and a generally concave side for lying adjacent the patient's gum, and the concave side being shaped to provide a central portion disposed away from the patient's gum thereby forming a channel for the saliva between the gum and concave side.

7. A saliva ejector including: a perforated member shaped for fitting in the upper labial area of a patient's mouth and having a channel therein, a manifold adapted for connection to a source of vacuum, at least one suction tube interconnecting the manifold and the resilient member and communicating with said channel for carrying saliva therefrom, another suction tube for carrying saliva and having a lower end with pivotal connection to the manifold and an upper end disposed adjacent the roof of the patient's mouth, a bell-shaped member attached to the upper end of said other suction tube for collecting saliva from the roof of the patient's mouth, and at least a portion of said other suction tube being made of resilient material for ease in positioning the bell-shaped member.

8. A saliva ejector including: means for carrying saliva and adapted for connection with a source of vacuum, said means including a body portion and a resilient suction tube pivotally connected thereto, saliva collecting means for collecting saliva from the roof of a patient's mouth and including a bell-shaped member on the suction tube, said member having an open end for lying adjacent the roof of a patient's mouth, and means attached to the body portion and having at least a portion shaped for fitting in the upper labial area of the patient's mouth to support the saliva collecting means adjacent the roof of the patient's mouth.

9. A saliva ejector including: a resilient member shaped for fitting in and extending generally the full length of the labial area of a patient's mouth, the resilient member being perforated and having channel means therein, the resilient member having end portions and a central portion having a cross-section smaller than the end portions to accommodate the patient's labial frenum, a manifold adapted for connection to a source of vacuum, and first and second suction tubes connected to the manifold and to a respective end portion to carry saliva from the channel means to the manifold.

10. A saliva ejector as set forth in claim 9 including: a third suction tube connected to the manifold and extending into the lingual area of the patient's mouth, and means on the third suction tube for collecting saliva from said lingual area.

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