The present invention relates generally to dental appliances and more particularly to saliva ejector tubes for removing saliva, water, etc., from the mouth of a patient undergoing dental treatment. Heretofore, all saliva ejector tubes have comprised a curved metal tube to which suction is applied and a metal nozzle on the end of the tube, adapted to rest on the floor of the mouth. The weight of the tube and nozzle is thus imposed upon the mucous membrane in the floor of the mouth, resulting in discomfort to the patient.

The principal object of my invention relates to the provision of a novel and improved ejector tube which is compact and efficient, but which imposes substantially no weight on the sensitive mouth membranes. This is accomplished by providing a metal tube which hooks over the lower jaw of the patient and is entirely supported by the teeth or gum of the jaw and a light, flexible, perforated extension of rubber or the like lies on the floor of the mouth without imposing an uncomfortable weight thereon.

These and other objects and advantages will become apparent to those skilled in the art after a consideration of the following description in which reference is had to the drawings appended hereto, in which:

Figure 1 is a sectional outline or diagrammatic representation of a human lower jaw and a saliva ejector in normal position thereon;

Figure 2 is an enlarged sectional view taken axially through the rubber extension;

Figure 3 is a sectional view similar to Figure 2, but showing a modified form of the invention;

Figure 4 is another modification shown in section; and

Figure 5 is still another modified form.

Referring now to the drawings and more particularly to Figures 1 and 2, the saliva ejector comprises a metal tube 10, one end of which is bent into a curved U-shaped portion 11 and terminates in a short end portion 12 bent at a relatively sharper angle, as indicated in Figure 1, for purposes which will be explained. The other end of the tube 10 carries a sleeve or collar 13 over which a flexible rubber suction tube 14 is fitted in airtight manner. The suction tube 14 is connected to a source of suction (not shown) as is well known to those skilled in the art.

A flexible extension tube 15 of rubber or like material is fitted on the end portion 12, which may be slightly flared as shown at 16 to better retain the extension. The extension 15 preferably has its free end closed by a rubber plug 17 cemented in, or the end may be closed by squeezing the end shut and sealing it by cement or by vulcanizing, as indicated at 18 in Figure 4. The closure plug 17 may have a hole 26 extending therethrough, thus partially closing the end of the tube, as shown in Figure 5.

The extension tube 15 is perforated by a number of small holes 19, located in axially and peripherally spaced relation. I have found that a 7/32" O. D. rubber tube, 1/4" I. D. with holes 3/64" diameter, gives satisfactory results.

The saliva ejector is placed in use by first fitting the collar 13 into the suction tube 14, then hooking the U-shaped portion 11 over the patient's lower jaw 20, resting the sharply bent end portion 12 over the lower front teeth 21. The end portion 12 turns down behind the cheek 22 and is short enough of the mouth, indicated at 22. If there are no lower front teeth, the tube can hook over the lower gum 23, but the end 12 will still terminate above the floor of the mouth. The flexible extension 15 is then placed under the tongue 24 and since the end tube 12 is pointing downwardly, the flexible extension extends to the floor and then bends rearwardly under the tongue. As shown in the drawing, the rubber extension is uniform in cross-section throughout its length and is therefore uniformly flexible. It is, therefore, evident that regardless of the depth of the mouth behind the lower teeth or gum, the extension 15 will adjust itself and will lie along the floor of the mouth at the location where the saliva collects.

Since the entire weight of the suction tube 14 and metal ejector tube 10 is carried on the front teeth 21, there is no pressure on the membrane in the bottom of the mouth, except that of the light flexible extension 15, which is negligible.

Suction applied to the tube 14 draws saliva into the holes 19 in the extension 15. The spacing of the several holes 19, both axially and peripherally, insures that even though some of the holes are blocked by contact with the membranes of the mouth, others of the holes will be free to admit saliva.

As shown in Figures 3 and 4 the flexible extension may be provided with a short axially extending slot 24 (Figure 3) or a longer slot 25 (Figure 4). In the embodiment of Figure 5, the end 26 is open instead of closed, as in Figures 1–4. I have found it advantageous to provide the open end 26 tends to suck in the soft membrane, causing some discomfort, and the slots 24, 25 have the same effect, to a lesser degree. The closed end tube (Figure 2), with enough small perforations to prevent the tube 15 from collapsing under suction, has been found to avoid any such discomfort, for the holes are too small to permit the membranes to be pulled into them to any appreciable extent. The plurality of holes 19 provides a number of parallel paths for entry of air and liquids into the tube, so that the pressure differential between the outside and inside of the tube is maintained at a low value, even though the membranes block some of the holes.

I do not intend my invention to be limited to the details shown and described herein except as set forth in the claims which follow.

I claim:

A saliva tube comprising a tubular stem having an end portion formed with a bend adapted to hang over and rest upon the lower jaw of a patient and terminate above the floor of the mouth, and a flexible rubber-like extension tube mounted on said end portion and extending downwardly behind the lower gum to the floor of the mouth and bending rearwardly to lie along the floor of the mouth under the tongue, said extension tube having a plurality of axially and peripherally spaced perforations along that entire portion of said tube which lies along the floor of the mouth to induce saliva therethrough from the front portion as well as from the rear portion of the floor of the mouth when suction is applied to said tube, said tube being uniformly flexible over substantially its entire length to bend rearwardly at the floor of any mouth regardless of its depth.

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