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SPRAY TUBE ATTACHMENT FOR DENTAL INSTRUMENTS

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Fig. 1.

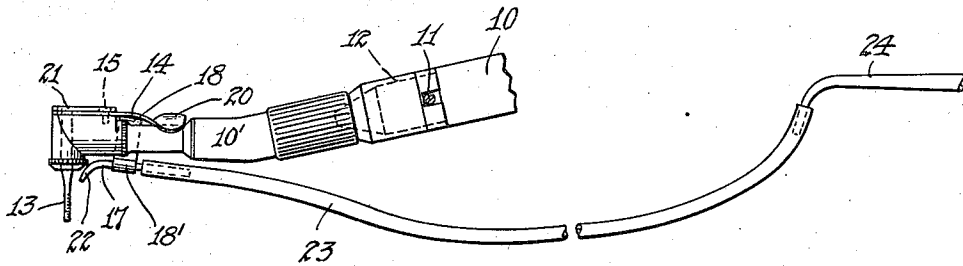


Fig. 2.

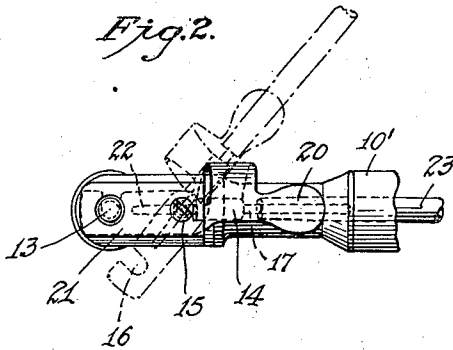


Fig. 3.

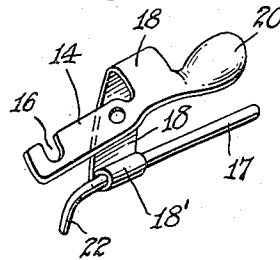


Fig. 4.

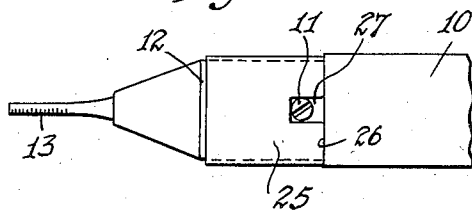
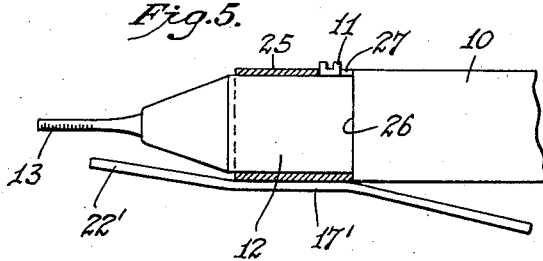


Fig. 5.



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SPRAY TUBE ATTACHMENT FOR DENTAL INSTRUMENTS

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1 Claim. (Cl. 32—28)

This invention relates to a device for use in dentistry, and particularly to means for attaching a spray tube to both a dental contra-angle and a hand-piece.

It is recognized by the dental profession that the use of a spray tube for applying warm air or water to a tooth during drilling or grinding operations is beneficial in preventing the danger of overheating and, in consequence thereof, reducing or entirely eliminating pain ordinarily suffered by the patient.

The need for cooling teeth while being drilled has increased as the speed of dental engines has increased, and the present need is manifold because of the current shortage of burs which entails longer use of dull burs with increased generation of heat. The present situation has also resulted in the more general use of diamond drills which cut faster and produce still more heat.

Heretofore many spray devices designed for this purpose have been more or less cumbersome, and because of a tendency to interfere with the skillful use of the dental instrument to which they are often inappropriately applied, have not come into general use.

It is an object of this invention to provide a device of this character which is firmly supported on a dental instrument in a novel manner at only one point of location, and adjacent the outer extremity thereof remote from interference with the position naturally occupied by the fingers of the dentist. Another object of the invention is to provide a spray device which may not only be firmly supported but which may be quickly applied by the dentist, and shifted or removed for cleansing purposes.

Further objects of the invention are herein-after set forth.

The embodiments shown and described herein are respectively applicable with substantially equal facility to either the contra-angle attachment or the hand-piece itself of the dental unit. In the first instance, a supporting bracket is integrally formed on the burr latch, and when the latter is snapped into position to lock the burr in place, the spray tube carried by it is positively supported against accidental displacement axially of the dental instrument. In the second instance, the spray tube is secured to a sleeve fitting snugly over the outer end of the hand-piece in a manner similar to which the contra-angle is secured, there being a notch in the inner edge of the sleeve for engagement with the usual mounting stud of the hand-piece, and which structure also serves in this instance to positively prevent accidental ro-

tary movement of the sleeve about the axis of the hand-piece.

The invention will be more fully understood by reference being had to the accompanying drawing forming a part of this specification, and in which drawing,

Fig. 1 is a side elevation of a portion of a dental hand-piece having a contra-angle secured thereto, and with an embodiment of this invention applied thereto.

Fig. 2 is a plan view of the outer left end of the apparatus shown in Fig. 1.

Fig. 3 is a perspective view of the burr latch showing the integrally formed bracket with the spray tube attached thereto.

Fig. 4 is a modified form of the invention showing the non-rotatable means for attaching the spray tube to a dental hand-piece, and,

Fig. 5 is a side elevation of the parts shown in Fig. 4, but indicating the attaching means for the spray tube in section.

Referring now in detail to the drawing, the forward end of a dental hand-piece 10 is shown in Fig. 1 having the usual stud 11 projecting from the periphery of a part 12 which is of reduced diameter so that a contra-angle 10' may be slipped over it and be firmly held in place against axial rotation by engagement with the said stud. Provision is made for the mounting of a burr 13 at the outer end of the contra-angle which is driven by means of internal connections not shown. The burr 13 is prevented from movement downwardly by a burr latch 14 which is pivotally secured to the top of the contra-angle by a screw 15. The outer end of the burr latch is notched on one side at 16 for engagement with a groove at the top of the shank of the burr when the latch 14 is moved from the position shown in dot and dash lines in Fig. 2 to the full line position indicated.

The present invention contemplates the use of the burr latch 14 for the support of a spray tube 17 on the contra-angle. For this purpose there is provided a bracket 18 which in this instance is shown as forming an integral part of the latch, offset therefrom and curving outwardly and downwardly so as to closely extend around the adjacent contour of the contra-angle. The lower end of the bracket 18 may be formed with an eye 18' through which the spray tube 17 may be threaded, or the latter may be simply soldered to the bracket as will be understood. The other end of the burr latch is provided with the usual thumb tip 20 which is bowed transversely to snap over the rounded top of the contra-angle, as shown in Fig. 1, and thus prevents angular dis-

placement of the latch and dislodgement of the burr during active use of the instrument.

As the latch 14 may be quickly and easily removed from its position beneath the overhanging portion 21 of the contra-angle by simply removing the pivotal screw 15, the spray tube will likewise follow. However, the swinging of these parts into the position shown in dot and dash lines in Fig. 2 to release the burr, affords easier access to any dirt having a tendency to accumulate on the top of and above the spray tube 17, so that the removal of the latch for a more thorough cleaning is a matter of infrequent occurrence.

The outer end of the spray tube 17 is curved downwardly to provide a nozzle 22 terminating close to the shank of the burr 13, and directed toward the lower end thereof. The other end of the spray tube extends beyond the bracket 18, and a hose 23 of suitable length may be slipped over the same, and the opposite end of the hose over any one of the various nozzles of the dental unit as may be desired, such, for example, as the chip blower nozzle 24 shown in Fig. 1, or the warm water syringe, or the spray bottle, etc.

It will now be apparent that because the burr latch is manually movable and removable, and yet positively held in position against axial displacement by reason of the spring-like gripping of the thumb tip 20, it provides a desirable means of support for attaching a spray tube to a contra-angle. And furthermore, that the location of such supporting means is both out of the line of vision of the operating dentist, and free of any interference with the pen-hold position of the hand used particularly for delicate work.

Referring to Figs. 4 and 5, the burr 13 is shown mounted directly in the hand-piece instead of in the contra-angle, which latter is removed when not needed for its special purpose. In this form of the invention there is a modified spray tube 17' and a modified support consisting of a sleeve 25 dimensioned internally to fit snugly over the part 12 of the hand-piece 10, and so as to abut the usual shoulder 26 on the hand-piece. The inner edge of the sleeve 25 is notched at 27 for engagement with the stud 11, and diametrically opposite to the notch a spray tube 17' is

suitably secured to the sleeve, as by solder. The nozzle end 22' of the tube 17' extends partly alongside of the burr 13 and is inclined inwardly so as to be at an acute angle to the axis of the hand-piece, and to be directed toward the outer or cutting end of the burr. The other end of the tube 17' extending beyond the inner or notched end of the sleeve, is inclined away from the hand-piece for the convenient application of the hose 23 which may then be operatively connected in the manner above described.

It will now be apparent that in this form of the invention the spray tube 17' may also be positively and firmly attached to the hand-piece at one point of location with provision for positively preventing rotary movement of the supporting structure, and that the nozzle end 22' will therefore always remain in a fixed relative position beneath the burr when the hand-piece is held by the dentist in an operating position. The sleeve 25 may nevertheless be quickly removed when desired without the use of tools.

In either form of the invention the simple attachments illustrated are inexpensive to manufacture, and may be easily installed by the dentist himself. They are more sanitary than if rigidly attached because of the then added difficulty of removing accumulations of dust and other debris.

Various modifications within the scope of the appended claim may be made without departing from the spirit of my invention.

I claim:

A spray tube attachment for a dental contra-angle comprising a burr latch member adapted to be pivotally secured to said contra-angle, and operable to engage and hold the shank of a burr carried by the contra-angle, a bracket member extending from an edge of said burr latch member, and fashioned to substantially follow the adjacent contour of said contra-angle, and terminate at a point opposite and rearwardly of said burr, and a spray tube secured to said bracket terminal, whereby when the burr latch member is actuated the spray tube will move with it toward or away from the burr for the purpose set forth.

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