E. S. HODGSON, JR.

DENTAL NOZZLE.

APPLICATION FILED JULY 12, 1909.

949,480.

Patented Feb. 15, 1910.

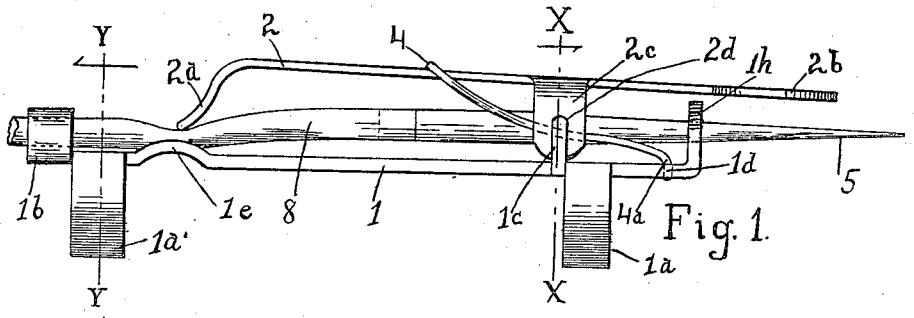

Fig. 1.

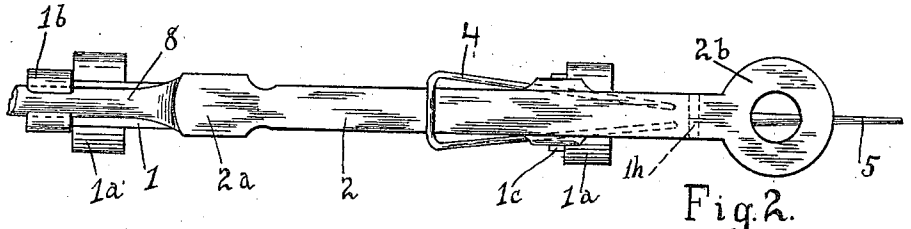

Fig. 2.

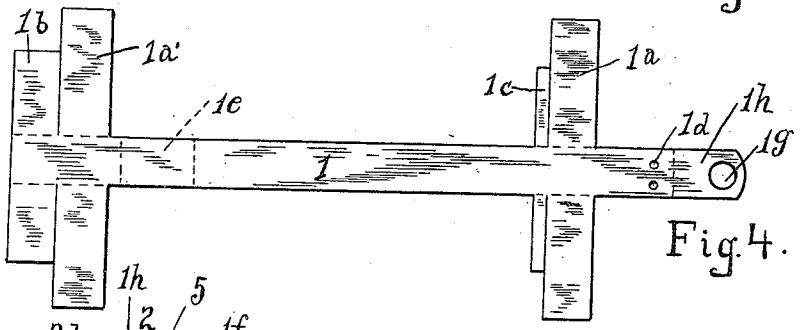

Fig. 4.

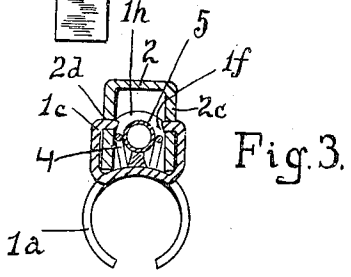

Fig. 3.

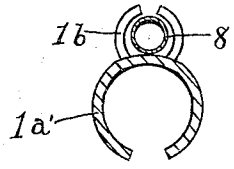

Fig. 5.

Witnesses.
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UNITED STATES PATENT OFFICE.

EDWARD S. HODGSON, JR., OF EAST ST. LOUIS, ILLINOIS.

DENTAL NOZZLE.

949,480. Specification of Letters Patent. Patented Feb. 15, 1910.

Application filed July 12, 1909. Serial No. 507,174.

To all whom it may concern:

Be it known that I, EDWARD S. HODGSON, Jr., a citizen of the United States, residing at East St. Louis, in the county of St. Clair and State of Illinois, have invented certain new and useful Improvements in Dental Nozzles, of which the following is such a full, clear, and exact description as will enable others skilled in the art to make and use my said invention.

This invention relates to nozzles connectible with the hand pieces of dental engines and adapted to apply compressed air or water, as the case may be, to the instrument in use in connection with the hand piece.

The objects of my improvement are to provide in connection with the hand piece of a dental engine, means enabling the operator to control with the same hand that holds the hand piece, the supply of air or water or other liquid delivered upon or in close proximity to the instrument in use; to the end that if a grinding instrument is used, water or other liquid may be applied on the surface of said instrument, or in case an instrument is used which produces dust or chips while in operation the nozzle may be used to apply air in the cut or cavity produced by the instrument, to blow out the chips or dust resulting from the operation of the instrument. I attain these objects by mechanism illustrated in the accompanying drawing in which—

Figure 1 is a side elevation on an enlarged scale of the nozzle and connected parts; Fig. 2 is a top plan; Fig. 3 is a vertical section on the line X. X. of Fig. 1; Fig. 4 is a plan of the blank from which the base plate of the instrument is formed; and Fig. 5 is a vertical section on the line Y. Y. of Fig. 1.

Similar reference numerals and characters designate like parts in the several views.

The base plate 1, is preferably of light springy sheet metal, and has integral downwardly extending semi-annular members 1^a and $1^{a'}$ adapted to fit around the hand-piece of the dental engine and keep the machine in place on the hand-piece by the spring pressure of the members 1^a and $1^{a'}$ acting on the circumference of the hand piece. The springy semi-annular members 1^a and $1^{a'}$ readily adapt themselves to hand pieces of different sizes and forms, so that the machine may be used on any of the standard hand pieces, without using any securing devices other than the springy members themselves; and may be quickly placed upon or detached from the hand piece without interference with the ordinary uses of the hand piece. The base plate 1 also has integral upwardly extending approximately semi-annular springy members 1^b adapted to surround and hold, without unduly compressing, the tube conveying water or air to the nozzle as hereinafter described.

The members 1^b being of light metal, may be fitted to tubes of different sizes merely by pressing them together or spreading them apart sufficiently to fit them to the tube which it is intended to use. The base plate also has integral vertical members 1^c serving as standards on which the compressor is supported. The members 1^b are pressed out of the same parts of the metal which form the members $1^{a'}$; and the members 1^c are pressed out of the same parts of the metal which form the members 1^a. The forming of the members in this way facilitates speedy construction and economical use of material.

The compressor 2 is formed from a single piece of sheet metal of sufficient rigidity, and comprises a downwardly extending finger 2^a, a ring 2^b, and downwardly extending hinge members 2^c having holes 2^d in which the inwardly turned ends 1^f of the members 1^c fit so that the compressor 2 will oscillate on the parts 1^f. A spring 4 extends across the compressor 2 and has downwardly extending members 4^a fitting in holes 1^d in the plate 1. Immediately under the finger 2^a the plate 1 has a raised part 1^e. The nozzle 5 is a tapering metal tube of suitable dimensions lying lengthwise of the base 1 and the compressor 2 and situated between the members 2^c of the compressor 2 and extending forwardly through a hole 1^g in the upturned member 1^h of the base-plate 1, in such position that the nozzle will discharge on, or in close proximity to, the instrument in use in connection with the hand-piece of the dental engine. The nozzle 5 is preferably brazed upon the upper surface of the plate 1, but it may be secured in any other suitable manner in the position stated. The hand-piece (not shown) to which the instrument is applicable, may be of any usual or approved construction and may be equipped with the usual revoluble chuck adapted to actuate a grinding wheel, or stone, or other instrument, such as a bur or rimmer, held in the chuck.

A flexible tube 8 passes between and is

held by the members 1^b. One end of the tube 8 is connected with the nozzle 5 and its other end may connect in any suitable manner with any suitable means (not shown) for supplying compressed air, or water, or other liquid, under pressure within said tube. The spring 4 normally acts to press downward on the compressor 2 and thereby cause the finger 2^a acting on that part of the tube 8 lying upon the raised part 1^e of the plate 1, to compress the tube sufficiently to close it and prevent the passage of air or liquid through the tube to the nozzle 5.

In practical use the operator grasps the hand-piece and holds it so that his thumb will rest upon the ring 2^b, and then manipulates the hand-piece in the usual manner, as may be required to execute the work in hand. If he is using a cutting or scraping instrument such as a bur or rimmer and wishes to remove the cuttings or dust as the operation progresses, he will press upon the ring 2^b with his thumb thereby lifting the finger 2^a to remove the pressure on the tube 8 so as to permit air to pass through the tube and blow away the chips or dust; or if he is using a stone the procedure will be the same, except that water or other liquid for moistening the stone will flow through the tube 8, and the nozzle 5 onto the face of the stone.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In combination with a basal plate comprising in a single integral structure downwardly extending springy members adapted to fit hand pieces of different sizes, upwardly extending tube-holding members adapted to accommodate a tube between said members, upwardly extending standard-members adapted to form standards to support a compressor oscillative thereon, and an upwardly extending tube-supporting member having a hole adapted to accommodate a nozzle extending length-wise of said basal plate through said hole; a compressor having downwardly extending members mounted to oscillate on the vertical standard-members of said basal plate, a forwardly and downwardly extending finger adapted to compress a tube held between the tube-holding members of said basal plate, and a rearwardly extending member provided with a ring; and a spring spanning said compressor and having its ends fixed on said basal plate and acting to hold the finger of said compressor in contact with the tube held by the tube-holding members of said basal plate.

2. A blank for basal plates for dental nozzles; comprising an elongated body; laterally extending handle-holder members adapted to be bent downward and shaped to conform to the handles of dental nozzles; laterally extending tube-holder members adapted to be turned upward and bent to fit around a tube situated between said members; laterally extending standard-members adapted to be bent upward to form standards for supporting a compressor; and a forwardly extending nozzle-support member having a central hole and adapted to be bent upward to form a nozzle-support accommodating a horizontal nozzle fitting in the hole in said nozzle-support member.

In witness whereof I have hereunto signed my name at East St. Louis, Illinois, this 20th day of April, 1909.

EDWARD S. HODGSON, JR.

Witnesses:
E. R. CHARLTON,
L. G. HARNEY.