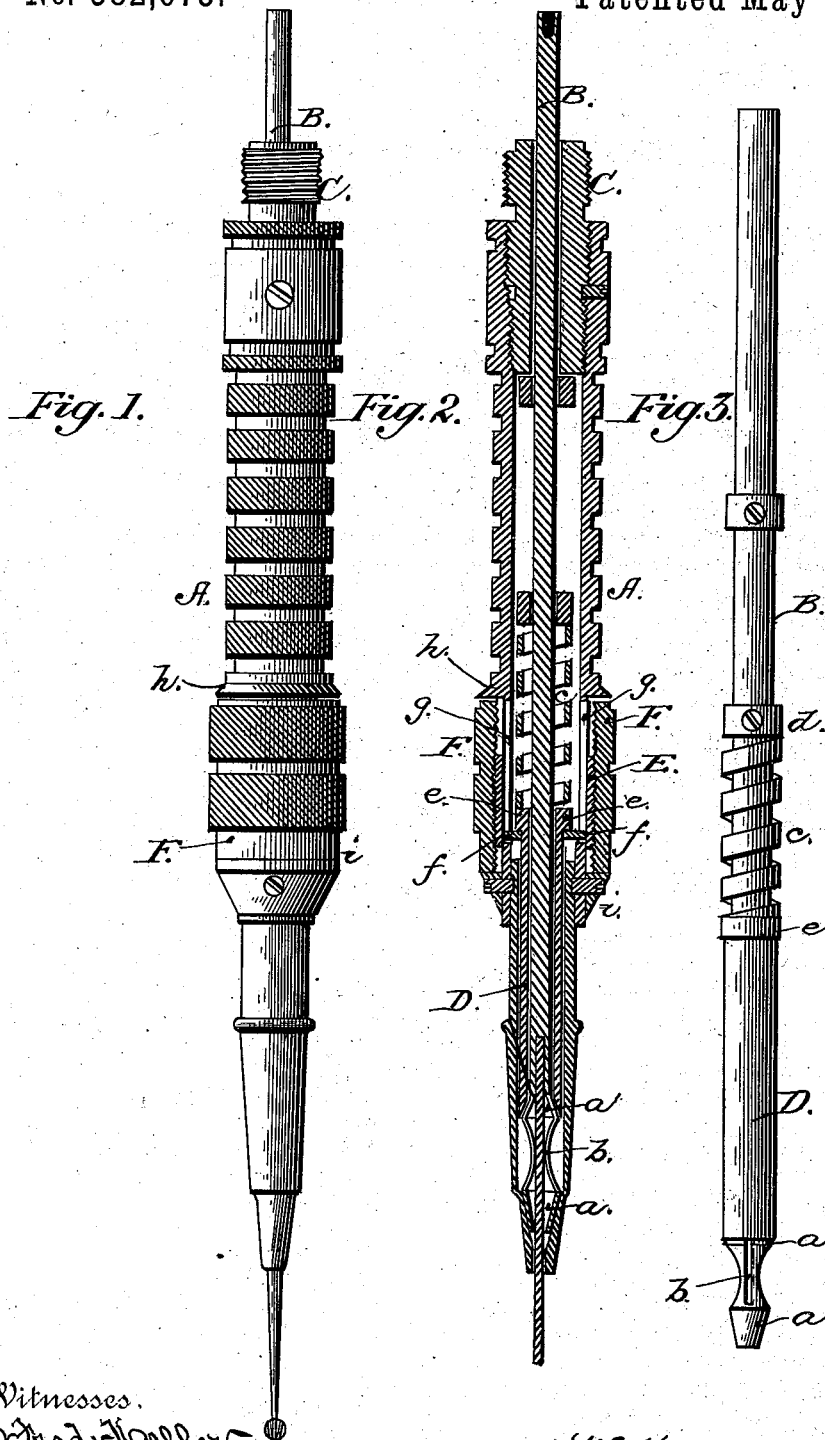


(No Model.)

W. D. WILLIAMS.
DENTAL HAND PIECE.

No. 382,673.

Patented May 8, 1888.



Witnesses.
Edw. J. Haller.
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UNITED STATES PATENT OFFICE.

WALTER DILLON WILLIAMS, OF CAMDEN, NEW JERSEY, ASSIGNOR OF ONE-HALF TO A. J. FULLMER, OF SAME PLACE.

DENTAL HAND-PIECE.

SPECIFICATION forming part of Letters Patent No. 382,673, dated May 8, 1888.

Application filed August 27, 1887. Serial No. 248,001. (No model.)

To all whom it may concern:

Be it known that I, WALTER DILLON WILLIAMS, a citizen of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Dental Hand-Pieces; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to improvements in that class of dental hand-pieces which are composed of an outer casing or tube having a tubular shaft or spindle suitably journaled therein, and provided at one end with mechanism for holding burr-drills, and connected at the opposite end to the flexible rotary shaft of a suitable dental engine for rotating said drills, the object of my improvements being to provide a dental hand-piece that shall have the least number of parts at the minimum of cost, one that will be simple, accurate, and reliable both in its construction and operation, and which is capable of ready operation to secure the drill in position or to release the same at pleasure by the employment of one hand alone.

To the above ends my invention consists of the novel features of construction and general arrangement of parts, as will be hereinafter fully set forth, and specifically designated in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved dental instrument; Fig. 2, a vertical longitudinal section thereof, and Fig. 3 a detail view of the tubular shaft or spindle.

Similar letters of reference indicate like parts in the several figures of the drawings.

The outer casing, A, of the dental tool is cylindrical in shape, and tapers slightly toward the tool-holding end, and is adapted to receive the tubular shaft or spindle B, as fully shown in Fig. 2.

The spindle B is formed in one continuous length, and provided at its outer end with two cones, *a a'*, integral therewith, and located a short distance apart, the bevel-faces of said cones projecting in opposite directions to each other, and the outer end of the spindle being

bored out a suitable depth and diameter to receive the shank of the drill or tool, while elongated slits *b* are provided in the sides of the spindle below the outer cone, *a*, to form flexible jaws, the said slits extending through the second cone, *a'*, as shown.

The cone *a* upon the outer end of the spindle B is adapted to rest in a correspondingly-shaped bearing in the tapering end of the casing A, while the opposite rear end of the spindle is adapted to freely revolve in a bearing in a screw-threaded shoulder, C, fitting the rear of the said casing, to provide a continuous straight journal having a true revolving center to take up all lost motion. Near the outer end of the spindle is provided a hollow sleeve, D, which fits upon the said spindle, with its outer end impinging normally upon the beveled surface of the cone *a* to compress the flexible jaws together through the medium of the spiral spring *c*, arranged upon the said spindle between the base of the sleeve D and the collar *d*, which is also adjustably fixed upon the spindle, as fully shown in Fig. 3.

At the lower end of the hollow sleeve D, and formed integral therewith, is provided a collar, *e*, against the upper surface of which impinge the inner ends of the lugs *f*, projecting inwardly from the sleeve E, arranged upon the central part of the casing A.

The sleeve E is provided upon its outer surface with fine screw-threads adapted to engage with corresponding screw-threads upon the interior of the sleeve F, which fits over the same, and the sleeve E has its lugs *f* projecting inwardly into the casing A, through the slots *g* in the sides of the same, so as to contact with the collar *e* of the hollow sleeve D to draw said sleeve downward from its engagement with the cone *a'* of the flexible jaws to open the same for the insertion or removal of the shank of the drill.

The two sleeves, E and F, are arranged upon the casing A between the collar *h*, formed integral with said casing, and the collar *i*, adjustably secured upon said casing, as shown, it being only necessary to give the outer sleeve, F, a slight turn to the right to cause the inner sleeve, E, with its inwardly-projecting lugs to draw down the hollow sleeve D of the spindle to open the flexible jaws, and a similar turn

of the outer sleeve, F, in the opposite direction to secure the closing of the flexible jaws.

It will be readily seen that the dental tool can be held in one hand and the sleeve F operated in either direction to open or close the flexible jaws by the employment of the thumb and finger of the hand that holds the instrument.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a dental hand-piece, the outer casing having a rigid collar and an adjustable collar thereon, a female screw-threaded sleeve surrounding the casing and closely fitted between the collars, a male screw-threaded sliding sleeve surrounding the casing inside the other sleeve, having lugs which project inwardly

through openings in the casing, and the spindle having a spring-actuated sleeve, substantially as described.

2. In a dental hand-piece, and in combination with the outer casing provided with the screw-threaded sleeves E and F, the spindle B, formed in one continuous piece and provided with the spring-actuated sleeve D, with which engages the said screw-threaded sleeves E and F upon the outer casing, substantially in the manner and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

WALTER DILLON WILLIAMS. [L. S.]

Witnesses:

WM. BIRD,

L. B. HUMPHREYS.