

F. E. PERKINS.
 DENTAL TOOL.
 APPLICATION FILED MAY 8, 1914.

1,125,168.

Patented Jan. 19, 1915.

Fig. 1.

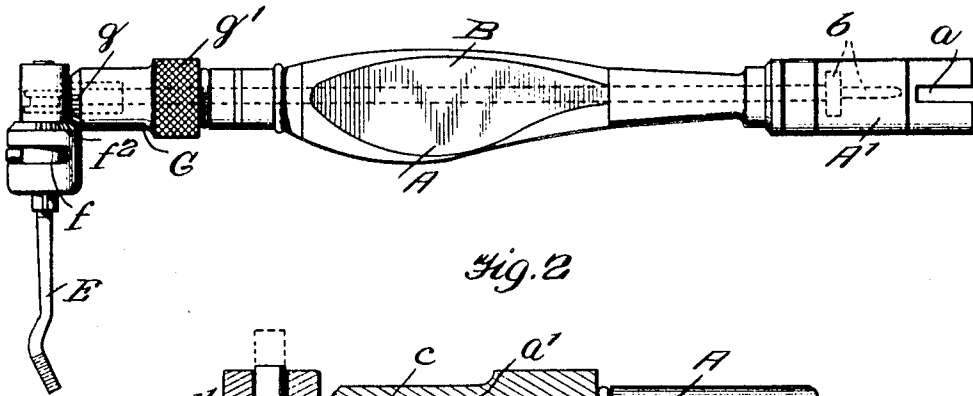


Fig. 2.

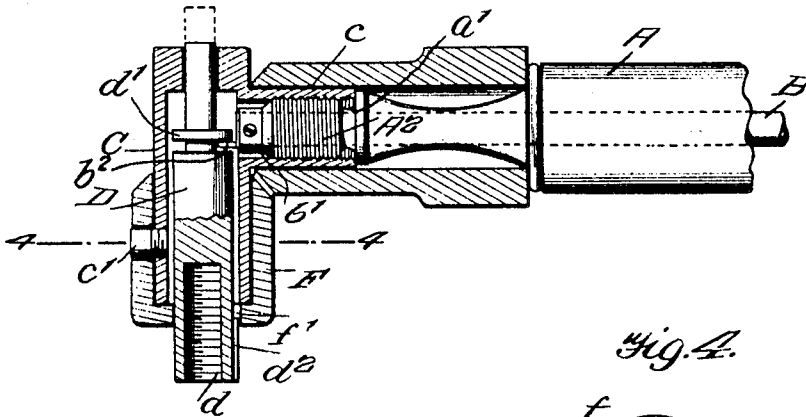


Fig. 3.

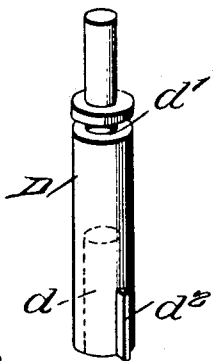


Fig. 4.

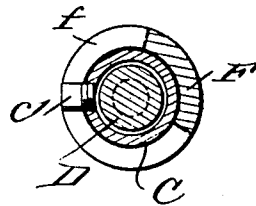
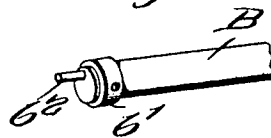


Fig. 5.



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DENTAL TOOL.

1,125,168.

Specification of Letters Patent.

Patented Jan. 19, 1915.

Application filed May 8, 1914. Serial No. 837,195.

To all whom it may concern:

Be it known that I, FRANK E. PERKINS, a citizen of the United States, and a resident of High Point, in the county of Guilford and State of North Carolina, have invented an Improvement in Dental Tools, of which the following is a specification.

My present invention relates generally to dental tools and implements and is, more particularly, in the nature of a tool designed for the treatment of pyorrhea and to this end my object is to provide a tool including a handle and a longitudinally vibratory shaft extending at an angle with respect to the handle and to which the operating implement is attachable, together with means whereby the said implement may be adjusted or revolved around a tooth during its vibratory movement by the hand of the operator.

A further object of my invention is to accomplish the above by simple, inexpensive and effective means, occupying minimum space and presenting a neat and compact appearance.

These and other objects residing more particularly in the details of construction, will clearly appear from the following description, in which reference is made to the accompanying drawing, forming a part of this specification, and in which—

Figure 1 is a side elevation of the complete tool. Fig. 2 is a sectional view through the head end of the tool. Fig. 3 is a detail perspective view of the vibratory shaft. Fig. 4 is a detail cross section taken through a part of the tool substantially on line 4—4 of Fig. 2, and Fig. 5 is a detail perspective view of the head end of the handle shaft.

Referring now to these figures, my improved tool consists of a handle A longitudinally through which is mounted a rotatable shaft B. This handle A is, for its greater portion of similar construction to that of the usual dental engine hand-piece, having a socket portion A' at its rear end slotted at *a* to receive the attachable end of a flexible dental engine shaft, the handle shaft B having its rear end terminating in attached pieces *b*, located within the socket A' for connection with the flexible shaft just mentioned as is usual. Adjacent its relatively opposite end the handle A has an annular shoulder *a'* and an extended and reduced portion A² beyond said shoulder,

this reduced portion being threaded to screw into the internally threaded tubular extension *c* of a hollow angle piece C, the end of which extension *c* abuts the shoulder *a'* in the connected position as shown in Fig. 2. The head end of the handle shaft B projects beyond the reduced handle extension A² and is provided with a surrounding collar *b'* and a crank pin *b*² extending endwise therefrom parallel to its axis, it being seen from Fig. 2 that this crank pin projects within the angle piece C.

Mounted in the hollow angle piece C is a longitudinal vibratory shaft D having one end provided with a threaded socket *d* into which the operating implement shown at E in Fig. 1 may be secured. Intermediate its ends the shaft D is provided with an annular groove *d'* into which the crank pin *b*² extends when the handle and its angle piece are assembled as above described. Thus with the tool attached in the manner above stated to the flexible shaft of a dental engine and rotation of the handle shaft B thereby effected, the vibratory shaft D will be given a longitudinal reciprocatory movement and, through the particular means for accomplishing this movement, namely the crank pin *b*² within the annular groove *d'* of the vibratory shaft, the said vibratory shaft may be independently rotated during its vibratory movement in order that the operating implement E may be guided around the tooth operated upon during its vibrations. In order to effect this result, a sleeve F is rotatably mounted upon the outer end of the angle piece C within the limits of its slot *f*, extending partially around its circumference and in which a pin *c'*, projecting from the angle piece C, extends. The outer end of the sleeve F has a central aperture through which the shaft D works and is provided with a groove *f'* engaged by a rib *d*² of the vibratory shaft to form a solid connection between the shaft and the sleeve and thus effect independent rotary adjustment of the former to conform to the rotary adjustment of the latter. The inner end of the sleeve F is beveled and provided with teeth *f*² extending partially therearound and in mesh with teeth *g* mounted upon the similarly beveled outer end of a controlling sleeve G rotatable upon the outer portion of the handle A and provided with a knurled portion *g'* which

may be conveniently grasped between the thumb and first finger as the handle A is held in the hand.

Thus in the use of my improved tool, the implement E is placed along side of the tooth to be operated upon or scraped and vibration thereof started through the means described, with the handle A held in the hand and the thumb and fore-finger grasping the knurled portion *g'* of the controlling sleeve G whereby during the operation the implement E through the connections stated may be rotated and thus conveniently adjusted around the tooth. It is obvious furthermore that my invention is not limited to the particular manner of treating teeth for the purposes before mentioned, but may be applied with equal facility to other operations involving the use of implements attached to the vibratory shaft D and in their nature different from the implement E as shown.

I claim:

1. In a dental tool, the combination of a handle, having a reduced threaded end, a shaft journaled axially through the handle and provided with an axially projecting crank pin extending beyond the said threaded handle end, a hollow angle piece having a laterally tubular extension threaded for engagement upon the said reduced end of the handle, a longitudinally vibratory shaft mounted in the angle piece and having an intermediate annular groove in which the crank pin extends and further provided with a socket at one end for the connection of an operating implement, a sleeve rotatably adjustable upon one end of the angle piece and having a splined connection with the respective end of the vibratory shaft, and a sleeve rotatably adjustable upon the outer end of the handle adjacent the angle piece and having a geared connection with the said sleeve of the angle piece, substantially as described.

2. In a dental tool of the character described, the combination of a handle, a shaft rotatably mounted through the handle and provided with an axially projecting crank pin at one end, an angle piece threadedly connected to one end of the handle and into which the crank pin projects, a longitudinally vibratory shaft mounted in the angle piece and having an intermediate annular groove which receives the crank pin, and also provided with an end socket to receive

an operating implement, and means whereby to adjust the vibratory shaft in a rotary direction during its vibratory movement, substantially as described.

3. In a dental tool of the character described the combination of a handle, a shaft extending axially through the handle and provided with an axially projecting crank pin at one end, an angle piece connected to one end of the handle and into which the crank pin extends, and a vibratory shaft mounted within the angle piece, having a socket at one end for the attachment of an operating implement, and provided with an intermediate annular groove which receives the crank pin, all for the purpose described.

4. In a dental tool, the combination of a handle, a shaft mounted through the handle, an angle piece secured to one end of the handle, a vibratory shaft mounted in the angle piece, connections between the handle shaft and the vibratory shaft whereby to effect a vibratory movement of the latter when the frame is rotated, and means whereby to independently rotate the vibratory shaft during its vibratory movement.

5. In a dental tool, the combination of a handle, a shaft mounted through the handle, an angle piece secured to one end of the handle, a vibratory shaft mounted in the angle piece, connections between the handle shaft and the vibratory shaft whereby to effect a vibratory movement of the latter when the frame is rotated, and means whereby to independently rotate the vibratory shaft during its vibratory movement, said means including an adjusting member carried by the handle.

6. In a dental tool, the combination of a handle, a shaft mounted through the handle, an angle piece secured to one end of the handle, a vibratory shaft mounted in the angle piece, connections between the handle shaft and the vibratory shaft whereby to effect a vibratory movement of the latter when the frame is rotated, and means whereby to independently rotate the vibratory shaft during its vibratory movement, said means including an adjusting sleeve rotatable upon the handle adjacent to the angle piece, substantially as described.

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