(No Model.)

J. W. GILBERT.

DENTAL ENGINE HANDPIECE.

No. 601,395. Patented Mar. 29, 1898.

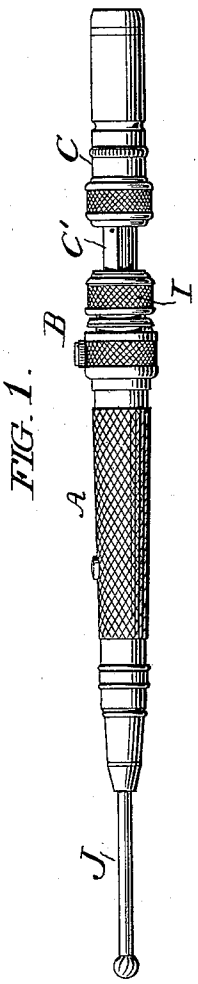


FIG. 1.

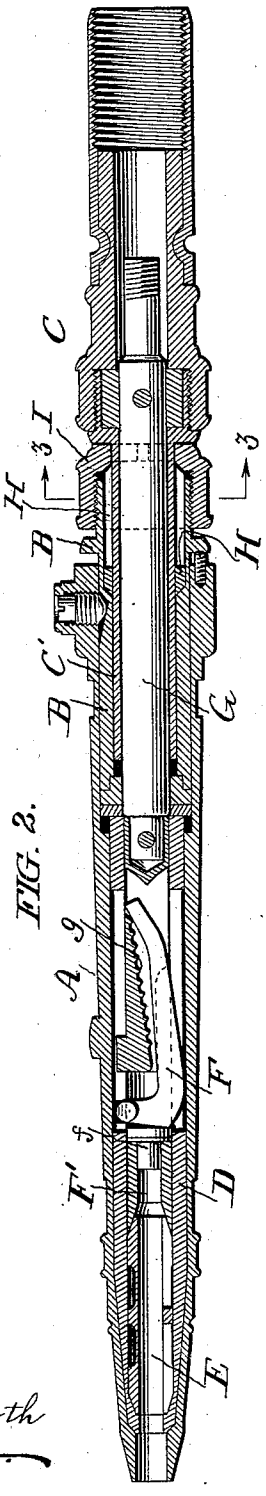


FIG. 2.

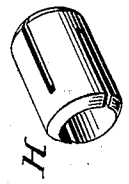


FIG. 5.

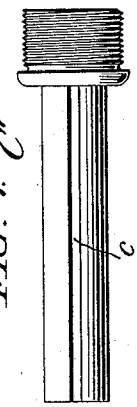


FIG. 4.

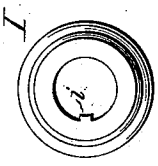


FIG. 6.

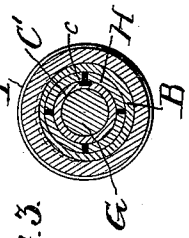


FIG. 3.

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UNITED STATES PATENT OFFICE.

JOHN W. GILBERT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE S. S. WHITE DENTAL MANUFACTURING COMPANY, OF SAME PLACE.

DENTAL-ENGINE HANDPIECE.

SPECIFICATION forming part of Letters Patent No. 601,395, dated March 29, 1898.

Application filed October 2, 1897. Serial No. 653,804. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. GILBERT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Dental-Engine Handpieces; 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 invention relates to a certain improvement, as hereinafter claimed, in dental-engine handpieces of the class known as "chuck-handpieces;" and my object chiefly is to improve that type of this class of handpieces shown in Letters Patent of the United States No. 291,571, dated January 8, 1884.

In the accompanying drawings, Figure 1 is a view in elevation of a handpiece with my improvement applied thereto. Fig. 2 is a longitudinal central section, on an enlarged scale, of the handpiece shown in Fig. 1. Fig. 3 is a cross-section on the line 3 3 of Fig. 2. Fig. 4 is a view in elevation of the front reduced tubular portion of the telescopic section of the handpiece detached. Fig. 5 is a perspective view of the adjustable bearing or chuck for clamping the movable sections of the handpiece together, and Fig. 6 is an end view of the nut or collar for operating said adjustable bearing or chuck.

The handpiece shown in the patent above referred to and to which my improvement is shown as applied consists, essentially, of a handle-section A and a telescopic or sliding section C, having telescoping or sliding connection with the handle-section by way of a tubular union-piece B, detachably connected with the handle-section, the front reduced tubular portion C′ of the telescopic section being adapted to slide in the tubular union-piece. A tubular spindle D is fitted to turn in the handle-section A, and a tubular split endwise-movable tool-holding chuck E is fitted within the front end of the tubular spindle. A pivoted lever F is also mounted in the tubular spindle and bears upon a headed pin *f*, which enters and bears upon a section F′ of the chuck. Movable endwise with and turning independently of the telescopic section C is a driving-shaft G, provided with a serrated wedge or inclined surface *g* on its forward end, which enters and is adapted to slide in the tubular spindle and bear upon the long arm of the lever F.

Without further description of the construction of the handpiece the operation will readily be understood. When the telescopic section is pulled rearwardly the driving-shaft G is also moved rearwardly and the wedge thereon rocks the lever F and forces the tool-locking chuck forward, thus compressing its jaws and locking the shank of a tool J inserted therein. Upon pushing the handle and telescopic sections together the pressure on the chuck is relieved and the tool released.

The sliding or telescopic connection between the handle-section and the telescopic section after long use of the handpiece sometimes wears and permits of an undesirable looseness of the parts. In order to overcome this objection, I have provided means for making a tight connection between the handle-section and the telescopic section, or, in other words, I have provided an adjustable bearing or chuck for the sliding connection between the two sections of the handpiece. To this end the bore of the union-piece of the handle-section is enlarged for a portion of its length, so as to provide a seat for an adjustable bearing, shown in this instance as consisting of a split chuck H. This chuck, which is tubular and surrounds the front reduced portion of the telescopic section, is beveled on its opposite ends. One of these beveled ends bears against the correspondingly-beveled lower end of a seat in the union-piece, while the opposite beveled end is adapted to be borne upon by an interiorly-threaded collar or nut I, screwing upon the exteriorly-threaded end of the union-piece. The collar or nut I is provided with a spline or feather *i*, adapted to engage a longitudinal groove *c* in the telescopic section, so that said section may slide freely through the collar or nut and the section and nut be turned together. By this means the collar or nut may be turned in opposite directions by the turning of the telescopic section of the handpiece and caused to screw backward or forward upon the union-piece, according to the direction in which it

is turned. When the nut is turned in one direction—say to the right—it forces the chuck forward and causes its opposite split ends to bear upon and grip the telescopic section, whereby any looseness between the sliding sections of the handpiece may be taken up and the telescopic section locked in order to prevent its being accidentally pushed forward relatively to the handle-section.

The operation of my improved handpiece is as follows: When the handpiece is adjusted, as shown in Fig. 2, with the sections pushed together, the shank of a tool, as J, may be inserted in the tool-holding chuck E and firmly clamped therein by pulling the telescopic section rearwardly, as shown in Fig. 1. By turning the telescopic section to the right relatively to the handle-section the telescopic section may be clamped in the handle-section, as before explained. To unlock the tool, it is only necessary to turn the telescopic section slightly to the left to release it from the grip of the adjustable bearing or chuck and then push it forward to unlock the tool-chuck. It will be observed that it is not necessary to clamp the telescopic section with any considerable force, a very slight turn of the nut I usually being all that is needed; but the telescopic section may be firmly clamped and locked, if desired.

I do not wish to be understood as confining my invention to the precise form of adjustable bearing or chuck shown and described or to the particular style of handpiece to which my improvement is shown as applied, as any suitable form of adjustable bearing or chuck may be employed, and the improvement is applicable to any style of handpiece of the class employing telescopic mechanism for operating the tool-holding chuck. The means shown for operating the adjustable bearing or chuck may also be varied without departing from the spirit of my invention, and, if desired, it may be operated directly by the fingers instead of through the telescopic section. Instead of the split-ended metal chuck I may use a tubular packing, as of leather or other yielding material, which may be caused to frictionally bear upon the telescopic section and act as an adjustable bearing or packing therefor.

I claim as my invention—

1. The combination, in a dental-engine handpiece, of the handle-section, the telescopic section, the adjustable bearing for clamping the two sections together, and the connections for actuating the adjustable bearing by the telescopic section, substantially as set forth.

2. The combination, in a dental-engine handpiece, of the handle-section, the telescopic section, the tubular spindle in the handle-section, the tool-locking chuck in said tubular spindle, means actuated by the endwise movement of the telescopic section for locking and unlocking the tool-locking chuck, and the adjustable bearing for clamping the telescopic section to the handle-section, substantially as described.

3. The combination, in a dental-engine handpiece, of the handle-section, the telescopic section having sliding or telescopic connection with the handle-section, the adjustable bearing carried by the handle-section and adapted to frictionally clamp the telescopic section, and the nut or collar actuated by the telescopic section for operating said adjustable bearing, substantially as set forth.

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

JOHN W. GILBERT.

Witnesses:

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