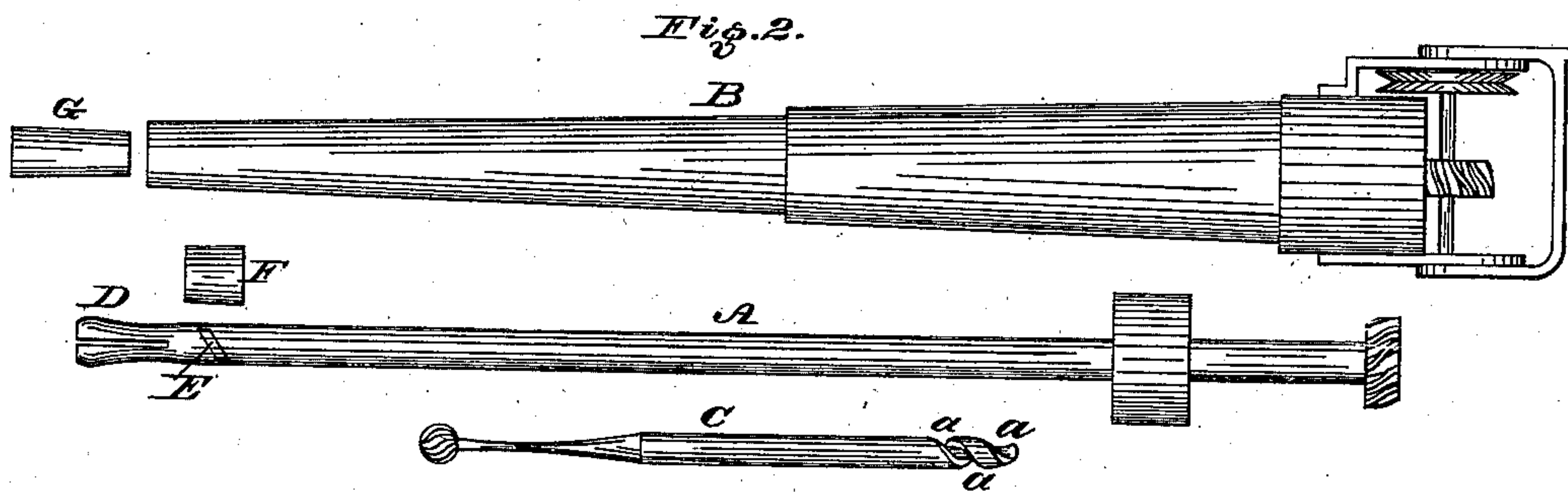
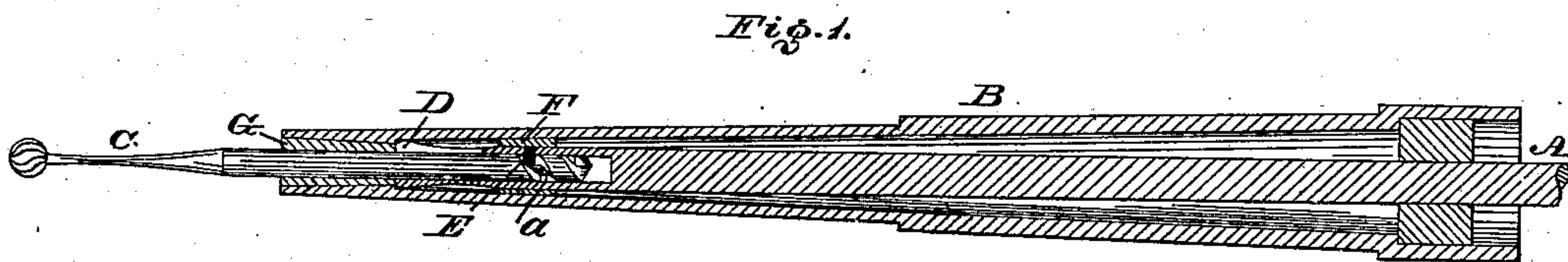


(Model.)

W. H. KIMBALL.  
HAND PIECE FOR DENTAL ENGINES.

No. 256,575.

Patented Apr. 18, 1882.



Witnesses:

R. P. Grant,  
W. F. Fisher

Inventor:

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# UNITED STATES PATENT OFFICE.

WILLIAM H. KIMBALL, OF BURLINGTON, NEW JERSEY.

## HAND-PIECE FOR DENTAL ENGINES.

SPECIFICATION forming part of Letters Patent No. 256,575, dated April 18, 1882.

Application filed June 1, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. KIMBALL, a citizen of the United States, residing at Burlington, in the county of Burlington, State of New Jersey, have invented a new and useful Improvement in Hand-Pieces for Dental Engines, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a longitudinal section of the hand-piece for dental engines embodying my invention. Fig. 2 is an exterior view of the several parts thereof separated.

Similar letters of reference indicate corresponding parts in the two figures.

My invention consists in forming the burr of the hand-piece for a dental engine with a spiral groove which is adapted to engage with a pin or stud on the inner face of the jaw of the shaft, whereby the burr may be quickly applied and removed, and when applied holds firmly in position without jamming, both by the connection of the pin or stud and spiral groove and the pressure of the jaw of the shaft, the exterior sleeve bearing against said jaw. The exterior sleeve compresses the jaw so that the burr is firmly embraced or pinched by the latter, and thus securely held, and the removal of the burr is accomplished simply by pulling it out, the holding power of the jaw being thereby overcome. In all cases, therefore, the application, security, and removal of the jaw are accomplished without the employment of levers or other attached clamping devices.

Referring to the drawings, A represents the shaft of the hand-piece and B the encircling-sleeve thereof, said shaft being operated by gearing which receives power from the dental engine. The forward end of the shaft A is tubular and slotted and forms the jaw D, for the reception of the burr C, and projecting inwardly from the inner face of the jaw, or of the portion of said tubular shaft near the split or slotted end of the jaw, is a pin or stud, E, which is inserted in an opening in the jaw and brazed or otherwise connected thereto.

As the pin or stud is inserted in the jaw from without, in order to prevent its displacement by pressure from within I employ a sleeve, F, which embraces and is secured to the jaw and bears against the outer end of said pin or

stud, it being evident that said sleeve fixed to the shaft or jaw acts as an abutment to the pin or stud and prevents the removal thereof.

The burr C is formed with a spiral groove, *a*, in contradistinction to a screw-thread, and said groove is adapted to engage with the pin or stud E of the jaw D, whereby when the burr is fitted to the jaw and properly rotated it quickly moves in to full extent and is firmly seated without jamming or binding, and the rotation in the reverse direction quickly removes it. When the burr is in position it is additionally held by the pressure of the jaw D of the shaft A, and thus prevented from rattling or working loose. The jaw has its split or slotted end in front, and the burr has its spiral groove at the rear. The spring-sections of the jaws are compressed by the action of the exterior sleeve, and they take hold of the burr and permit the removal of said burr without the employment of levers, &c., and the burr is held at two places of its length—viz., by the engagement of the pin E with the spiral groove *a* at the rear end, and the jaw D embracing the main body of the burr in front of said spiral groove—it being noticed that the body or shank of the burr remains intact excepting where it is cut to form the spiral groove *a*.

G represents a bushing or nose, which is fitted to the forward end of the inner face or bore of the sleeve B, and has the shank of the burr rotating directly against it. The said nose is formed of steel or other hard metal, and provides a wearing-surface for the burr instead of the sleeve B, whereby when the nose is worn out it may be driven from the sleeve and a fresh nose substituted, the nose being exteriorly unthreaded and tapering, the narrow end going foremost into the sleeve, the inner surface of the contiguous portion of the latter being also unthreaded and tapering, so as to coincide with the exterior of the nose, whereby the nose may be readily driven into the sleeve and thus secured, and when it is to be removed it is accomplished simply by being driven out from within the sleeve. When the shaft is in operation it heats the nose or bushing, and the surrounding sleeve B guards the fingers of the hand from coming in contact with said nose or bushing. As the nose



and sleeve are of small diameters, I avoid by my construction the cutting of the same with screw-threads and preserve the strength of said parts.

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

The burr having a spiral groove, *a*, in combination with the shaft A, having a tubular

spring-jaw, D, and a pin, E, projecting into the tubular portion of the shaft, and the exterior sleeve, B, which is adapted to compress said jaw, substantially as and for the purpose set forth.

WILLIAM H. KIMBALL.

Witnesses:

JOHN A. WIEDERSHEIM,  
A. P. GRANT.