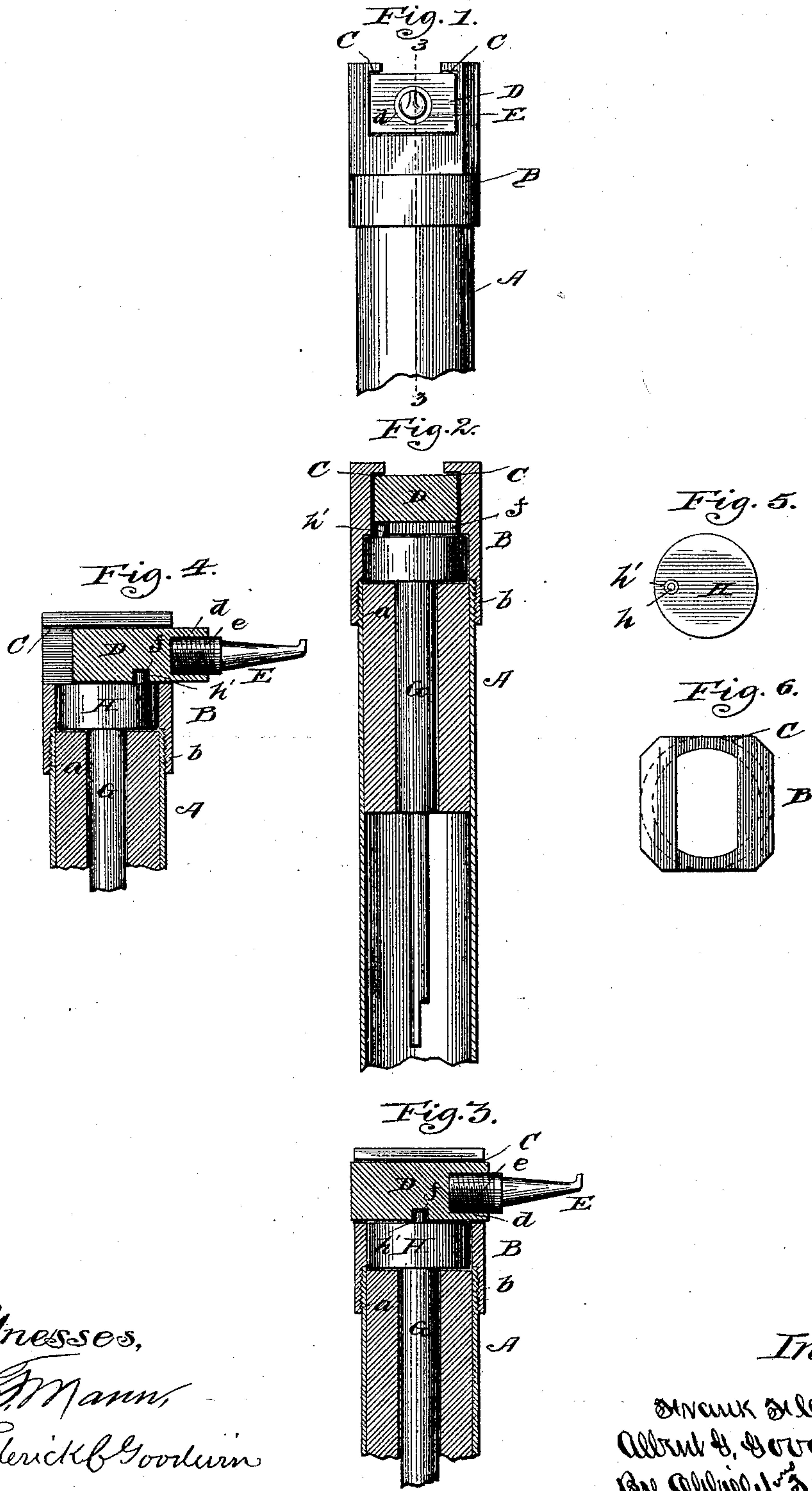


(No Model.)

F. FLEURY & A. G. GOODMAN.  
ANGLE ATTACHMENT FOR DENTAL ENGINES.

No. 435,138.

Patented Aug. 26, 1890.



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# UNITED STATES PATENT OFFICE.

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## ANGLE ATTACHMENT FOR DENTAL ENGINES.

SPECIFICATION forming part of Letters Patent No. 435,138, dated August 26, 1890.

Application filed January 25, 1890. Serial No. 338,043. (No model.)

*To all whom it may concern:*

Be it known that we, FRANK FLEURY and ALBERT G. GOODMAN, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Angle Attachments for Dental Engines, of which the following is a specification.

Our invention relates to certain improvements in dental engines, whereby they are adapted for use to operate a tool in a direction at right angles to the flexible rotary shaft; and the invention consists in a construction whereby the rotary motion of the shaft is converted into a right-angled reciprocating motion of the tool, which may be a plugger, file, saw, or emery strip. To attain the object above set forth, we provide the hand-piece at its outer end with a head-block having ways therein extending at right angles to the hand-piece, in which ways a reciprocating tool-stock is moved by means of a disk and pin, said disk being secured on the end of a revolving shaft, and the pin being projected into a slot in the lower surface of the tool-stock, said slot extending in a direction at right angles to the direction of motion of said stock.

In the accompanying drawings, Figure 1 is a front elevation of the hand-piece, particularly intended to show the head-block and the tool-stock in the ways thereof. Fig. 2 is an elevation partly in section from the same view point as Fig. 1. Fig. 3 is a sectional elevation on line 3 3 of Fig. 1 and at right angles to Fig. 2. Fig. 4 is also a sectional elevation on the same line as Fig. 3, but showing the tool-stock in a different position. Fig. 5 is a plan view of the crank-wheel, and Fig. 6 is a plan view of the hand-piece with the tool-stock removed.

In the drawings, A represents the hand-piece, which may be of the usual form, except that at its outer end it is provided with the head-block B, which will preferably be removable, and for this purpose we have shown the hand-piece A and head-block B with the mating-threads *a b*, respectively. The head-block has the ways C therein extending at right angles to the hand-piece, and within said ways a tool-stock D is placed, said tool-stock having a threaded aperture *d* to receive

a tool—such as the plugger E—whose shank may be threaded, as at *e*, to engage the threads of the stock. In the lower surface of the tool-stock is a groove *f* at right angles to the movement of the stock. The rotatable shaft G bears on its upper end a disk H, having an eccentric-pin *h*, which enters the slot *f* of the tool-stock. The pin *h* has a loose collar *h'* thereon, which can be replaced to take up wear and reduce the friction.

From the above description it will be apparent that the rotary motion of the shaft will be converted into a right-angled reciprocating motion of the tool-stock, and hence the engine will be adapted for use with a plugger, saw, file, emery strip, or other tool where a reciprocating motion is desired.

We do not limit our invention to the precise mechanical details, as the construction may be varied without departure from the principle herein shown. For example, the tool-stock may have the eccentric-pin secured to the lower surface thereof, and the groove may be formed in the disk or in the end of the rotating shaft, or instead of the disk the shaft may bear a simple crank-arm. The construction shown in the drawings, however, is preferable, because the disk operates to steady the shaft in its rotation.

We claim—

In an angle attachment for dental engines, the combination, with a hand-piece having a cylindrical casing, of a shaft rotatably mounted within said casing, a disk on the end of said shaft bearing an eccentrically-placed pin on its upper surface, a removable head-block having a threaded connection with the casing of the hand-piece, ways formed in its outer end at right angles to the hand-piece, and a tool-stock adapted to slide in said ways and having a slot in its lower surface into which the eccentric-pin projects, whereby the rotary motion of the shaft is converted into a right-angled reciprocating motion of the tool-stock, substantially as described.

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