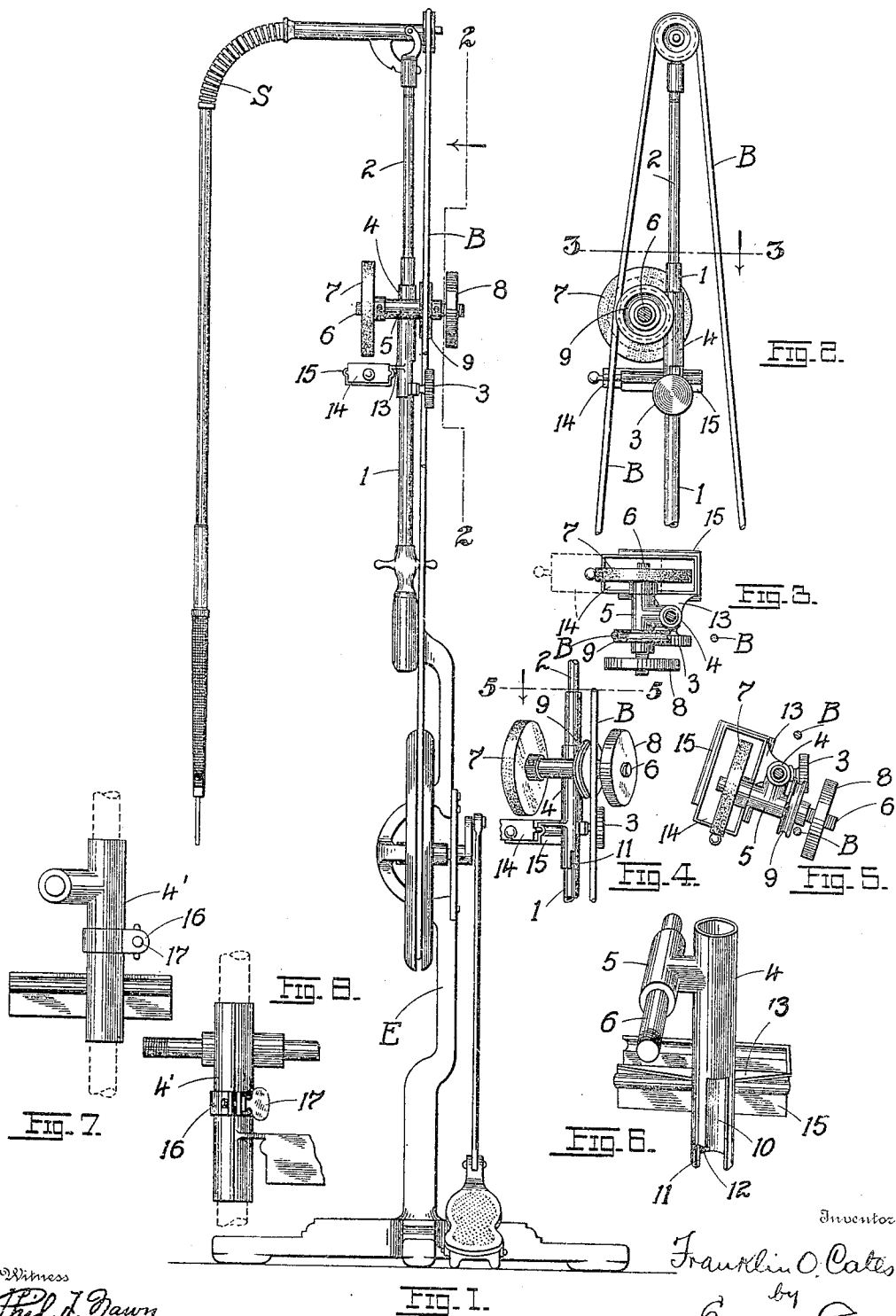


No. 801,215.

PATENTED OCT. 10, 1905.

F. O. CATES.  
DENTAL ENGINE ATTACHMENT.  
APPLICATION FILED JULY 23, 1904.



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# UNITED STATES PATENT OFFICE.

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## DENTAL-ENGINE ATTACHMENT.

No. 801,215.

Specification of Letters Patent.

Patented Oct. 10, 1905.

Application filed July 23, 1904. Serial No. 217,827.

*To all whom it may concern:*

Be it known that I, FRANKLIN O. CATES, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Dental-Engine Attachments, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in dental-engine attachments; and it consists in the novel grinding and buffing attachment more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a front elevation of a dental engine having my attachment applied thereto. Fig. 2 is a vertical section on line 2 2 of Fig. 1. Fig. 3 is a horizontal section on line 3 3 of Fig. 2. Fig. 4 is a perspective of the attachment shown disengaged from the dental-engine drive-belt. Fig. 5 is a horizontal cross-section on line 5 5 of Fig. 4. Fig. 6 is a perspective of the attachment, showing abrading and grinding disks removed. Fig. 7 is a side elevation of a modified form of sleeve and clamp therefor, and Fig. 8 is an elevation at right angles to Fig. 7.

The object of my invention is to provide a grinding, polishing, and buffing disk which may be temporarily attached to the staff of the ordinary dental engine, the purpose of the attachment being to finish and grind down bridgework and crowns and sharpen tools and the like without the necessity of resorting to special tools generally provided for the purpose.

In detail the invention may be described as follows:

Referring to the drawings, E represents a conventional foot-operated dental engine, the staff thereof being generally composed of a basal tube 1 and an adjustable rod 2 received thereby and secured thereto by a binding-screw 3.

B represents the main drive-belt, and S the flexible shaft operated thereby.

It frequently happens while the dentist is operating the engine and attending to the patient in the chair that it becomes necessary to grind down bridgework, gold crowns, and the like and to call the dentist away from the engine into the laboratory or workshop for the purpose. In order, therefore, to save time and to enable the dentist to accomplish this work without leaving his position by the side of the patient, I provide the engine with an

attachment which fulfils the desired conditions. The attachment comprises a sleeve 4, adapted to loosely slip over the tube 1, the sleeve being provided with a laterally-disposed tubular bearing 5 at right angles to the sleeve, said bearing serving to support the spindle or axis 6 of the grinding-disk 7, carried at one end thereof, and of the buffing-disk 8 at the opposite end. The spindle is, furthermore, provided with a pulley 9, which, as presently to be explained, can be brought into engagement with the belt B of the engine. The base of the sleeve 4 is provided with a longitudinal peripheral recess or slit 10, having a basal lateral notch or offset 11, forming a shoulder 12 with the side wall of the recess.

To bring the pulley 9 into engagement with the lap of the belt B, the sleeve is raised and given a turn until the shoulder 12 rests upon the stem of the binding or clamping screw 3, the belt being passed over the pulley, as shown in Figs. 1, 2, 3. The tension of the belt causes the vertical wall of the notch 11 to bear against the stem of the screw 3, being by this arrangement locked against movement, and being thus caused to remain in permanent engagement with the belt. To disengage the pulley 9, the sleeve is turned to bring the recess 10 over the stem of the screw 3, then allowed to drop to its lowest position, when the base of the recess rests against the stem of the screw, the sleeve being of course turned to bring the pulley out of the range of the belt, Figs. 4, 5.

Carried by the sleeve 4 at the end of a bracket 13, projecting from the sleeve, is a pan 14 for catching the gold dust which is removed from the crowns or bridgework subjected to the action of the grinding-disk 7, the said pan being mounted in ways 15 from which it may be withdrawn when occasion arises to dump out the contents of the pan.

In Figs. 7 and 8 I have shown modified means for securing the sleeve to the tube 1. In said modifications I provide the sleeve 4' with bands or peripheral straps 16, the free ends of which are coupled by a clamping-screw 17, the sleeve being slit longitudinally its full length, so that it may be moved up and down at will, and when once properly adjusted the proper turning of the screw 17 will clamp the parts to the tube 1 in said adjusted position.

In lieu of the buffing-disk 8 I may of course substitute a brush, depending on the character of work to be performed. The main purpose of the attachment, however, is to provide means for grinding down bridgework and

crowns without the necessity of resorting to special tools and appliances disconnected from the dental engine and without the necessity of leaving the person in the chair while the work is being fitted.

It is to be understood, of course, that I may depart from the details here shown without affecting either the nature or spirit of my invention.

Having described my invention, what I claim is—

1. In combination with a dental engine having a staff and a drive-belt disposed in proximity thereto, of a sleeve loosely mounted on the staff, a grinding-disk mounted on the sleeve, a pulley on the axis of the disk, and means for bringing the pulley into engagement with one of the laps of the belt, substantially as set forth.

2. An attachment for dental engines provided with a staff and a drive-belt, comprising a sleeve having a recess at the lower end of its peripheral wall, a notch at one side of the recess, a laterally-disposed tubular bearing carried by the sleeve, a grinding-disk having an axis mounted in the bearing, a pulley on the axis adapted to be swung into engagement with one of the laps of the belt by rotation of the sleeve about the staff in proper direction, and a pan carried by the sleeve beneath the disk, substantially as set forth.

3. In combination with a dental engine having a staff and a drive-belt disposed in proximity thereto, of a sleeve loosely and rotatably mounted on the staff, a laterally-disposed tubular bearing carried by the sleeve, a grinding-disk having an axis supported in said bearing, a pulley on the axis, a pan coupled to the sleeve, and means for locking the sleeve against movement during the engagement of the belt with the disk, substantially as set forth.

4. An attachment for dental engines provided with a staff and a drive-belt, comprising a sleeve having a recess at the lower end of its peripheral wall, a notch at the end of one side of the recess, a laterally-disposed tubular bearing carried by the sleeve, a grinding-disk having an axis mounted in the bearing, a pulley secured to said axis and adapted to be swung into engagement with one lap of the belt upon rotation of the sleeve about the staff in proper direction, a pan coupled to the sleeve, and means on the engine for locking the sleeve against movement upon engagement of the pulley with the belt aforesaid, substantially as set forth.

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

FRANKLIN O. CATES.

Witnesses:

EMIL STAREK,  
G. L. BELFRY.