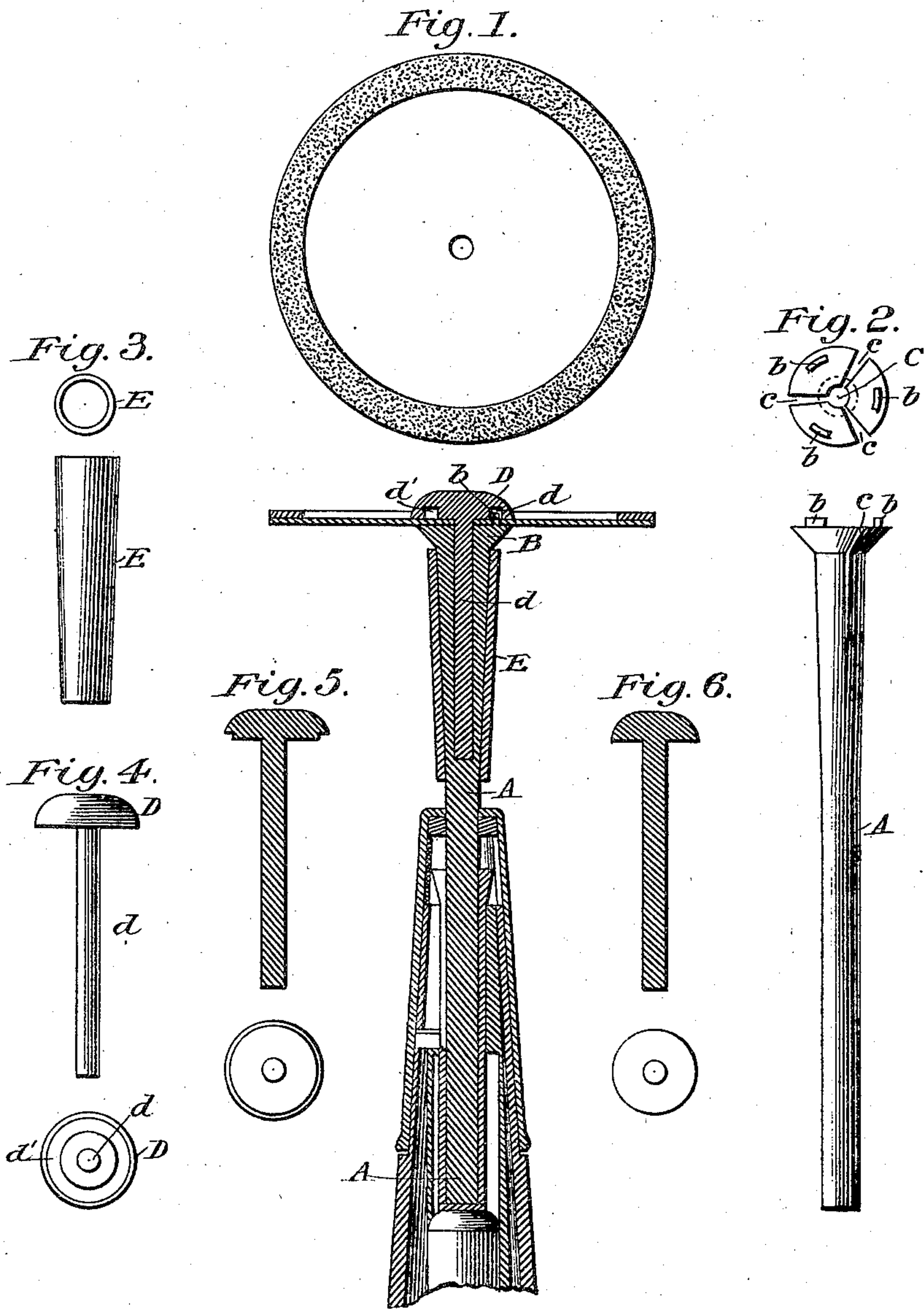


(No Model.)

J. W. SMITH.  
DENTAL TOOL.

No. 335,780.

Patented Feb. 9, 1886.



Witnesses:  
C. F. Brachett.  
H. W. Gillett

Inventor  
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# UNITED STATES PATENT OFFICE.

JOHN WILLIAM SMITH, OF NEWPORT, RHODE ISLAND.

## DENTAL TOOL.

SPECIFICATION forming part of Letters Patent No. 335,780, dated February 9, 1886.

Application filed June 17, 1884. Serial No. 135,166. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN WILLIAM SMITH, of the city and county of Newport, and of the State of Rhode Island, have invented a new and useful Dental Tool, of which the following is a specification.

My invention relates to dental tools, being a spindle or mandrel for use in connection with dental disks and similar tools requiring rotary motion for polishing fillings, separating teeth, and the like.

In practicing the art of dentistry it daily becomes desirable to use tools rotated by the dental engine. Flexible, abrasive, and polishing disks, commonly made of paper, and more or less coated on one side with some gritty substance, are a common class of these tools. By the very nature of the functions these disks are expected to perform they are necessarily very delicate in construction and of limited durability, several disks often being required to finish one filling. It follows, therefore, that the spindle or mandrel by which these disks are revolved should be so constructed that the disks may be easily and quickly adjusted in the mandrel, and the latter be also so constructed that it will not be in the way of the operator, or come disagreeably in contact with the teeth or mouth.

The object of my invention is, therefore, to construct a small and compact mandrel in which such disks and similar tools can be quickly adjusted and securely held in place in whatever direction it may be revolved and on whichever side may be the pressure, and as quickly removed and replaced without the use of tools, and when broken or worn out can be replaced at a trifling cost.

My invention consists of a shaft or spindle terminating in a flat or concave head or face plate at one end, the head end of the shaft being split lengthwise of the shaft and for a distance of about one-half of an inch from the head into two or more sections, to form a chuck, the center of said chuck adapted to receive a pin having a head corresponding in size of circumference to the head of the shaft, the head of the shaft or face-plate provided with spurs or teeth, and the inside of the head of the pin having a cavity or annular recess sufficiently large and deep to receive said spurs, a sleeve

constructed to slide or screw on the shaft, and, when moved near the head thereof, adapted to clamp the sections of the clutch and hold the pin rigidly therein, the shaft being slightly beveled near the head, causing the chuck to tighten its grip as the sleeve is pushed nearer that point.

In the accompanying drawings, Figure I is a sectional view of my improved mandrel. Fig. II is a perspective view of the shaft alone, and Fig. III is a view of the pin, showing the annular recess in the under side of its head; Fig. IV, a perspective view of headed pin; Fig. V, a sectional view of a second form of headed pin; Fig. VI, a third form of headed pin.

Similar letters of reference refer to similar parts.

The shaft A is made at one end to fit into the dental engine or other apparatus for revolving it, the other end terminating in the flat or concave head or face-plate B, provided with spurs or teeth *b*. Through the center of the head or shaft, for about three-fourths of an inch in depth from said head, is drilled a small hole, C. The head end of the shaft is split lengthwise for a distance of about one-half an inch from the head in two or more sections, leaving between said sections the small spaces *c*, so as to form a chuck.

The head D of the pin *d* is formed with the annular recess *d'* in its under side, or the under side of said head may be concave, or otherwise formed, so as to be adapted to receive, pass between, or press against the spurs *b* of the head of the shaft. The shaft A is slightly beveled for a short distance from its head, as shown in the drawings, and then the sleeve E is adapted to slide or screw on said shaft, and, when forced upward toward the head of the shaft on the beveled portion thereof, has a tendency to compress the sections of the upper part of the shaft together and toward the center, which contracts the hole C drilled in the center of that portion of the shaft.

To fasten the disk in my improved mandrel, the pin *d* is passed through the center of the disk, and then the said pin *d* is pressed down into the hole C in the shaft till the spurs or teeth *b* on the head of the shaft are forced into or through the disk. The sleeve E is then slid or screwed over the beveled portion of the



shaft, when the sections thereof will be forced together, and will tightly grasp the pin and will firmly hold it within the shaft, and the disk between the head of the shaft and the head of the pin. The disk is removed by sliding or screwing the sleeve back toward the small end of the shaft, which will release the sections of the clutch and allow the pin to be easily removed.

10 The spurs *b* are used to prevent the disk from moving around on the pin *d*, as it would otherwise do; but the spurs by pressing into the disk insure simultaneous rotation of mandrel and disk.

15 The use of the spurs is made necessary from the fact that the pin *d* is round, and unless some means were employed to require synchronous movement of mandrel and disk the latter would move around on the pin, and thereby be rendered useless. Their use may, however, be dispensed with by making pin *d* of

any angular or irregular shape to fit into or make for itself an opening of similar shape in the disk it is intended to hold. The pin, however, should always be of such shape, and should fit an opening in shaft of such shape, as to practically center the disk when the sleeve *E* is removed. I however consider the spurs the best device.

What I claim is—

30 In a dental-disk holder, the combination of the split chuck and face-plate, with spurs and the clamping-sleeve, with a pin fitted to be adjustably clamped in the split chuck, and having a head suitably recessed to inclose the spurs of the split face-plate, all serving to clamp and retain a dental disk, substantially as described.

JOHN WILLIAM SMITH.

Witnesses:

WALTER B. SIMMONS,  
EDWIN S. BURDICK.