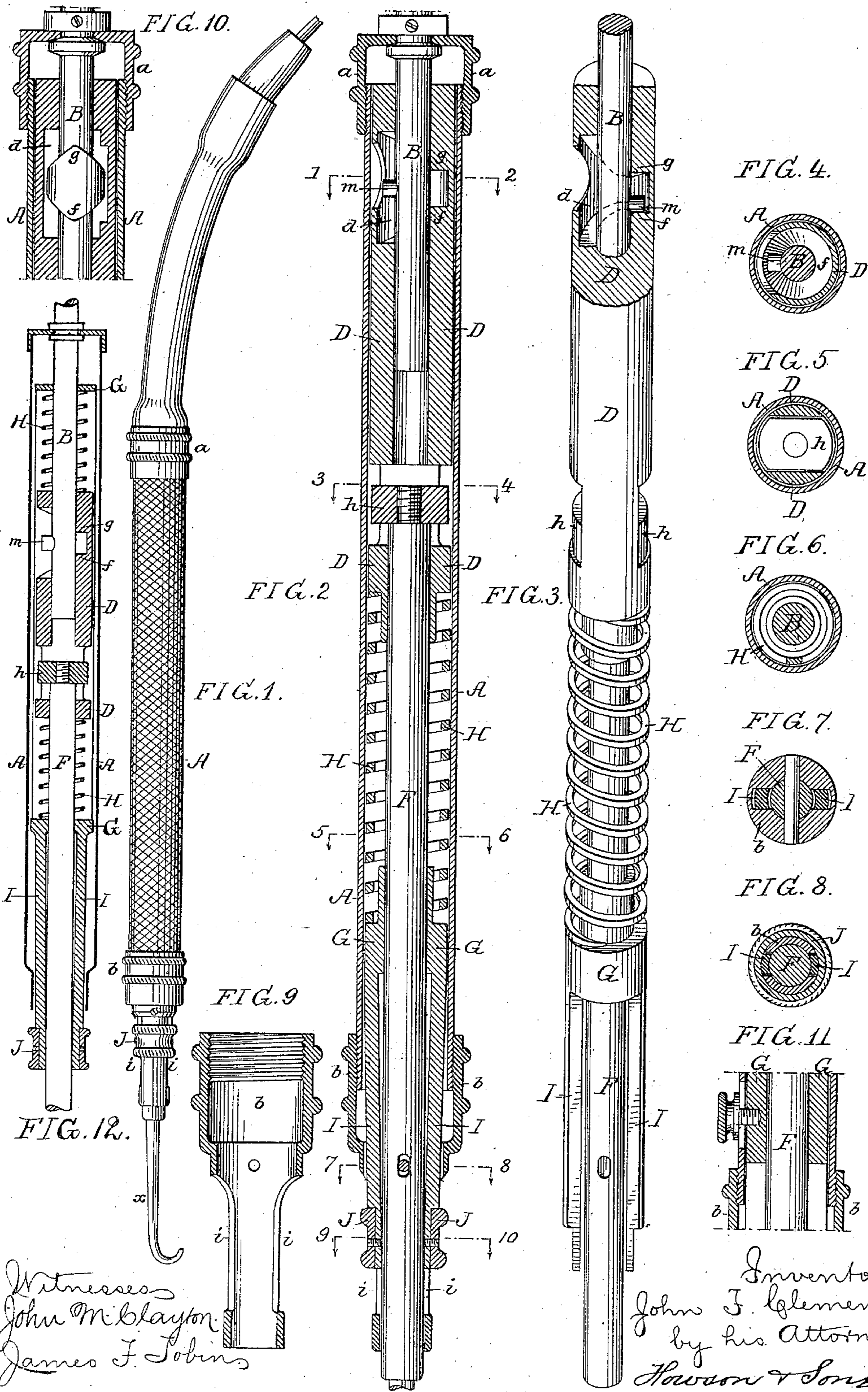


(No Model.)

J. F. CLEMENT.  
DENTAL PLUGGER.

No. 312,818.

Patented Feb. 24, 1885.



Witnesses  
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James F. Tobin

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# UNITED STATES PATENT OFFICE.

JOHN F. CLEMENT, OF PHILADELPHIA, PENNSYLVANIA.

## DENTAL PLUGGER.

SPECIFICATION forming part of Letters Patent No. 312,818, dated February 24, 1885.

Application filed November 24, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN F. CLEMENT, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Dental Pluggers, of which the following is a specification.

The object of my invention is to so construct a dental plugger as to provide for the delivery of the blow in either direction, to regulate the force of such blow, or to throw the instrument out of action without stopping the rotation of the driving-spindle.

In the accompanying drawings, Figure 1 is a side view of my improved dental plugger; Fig. 2, a longitudinal section of Fig. 1, drawn to an enlarged scale; Fig. 3, a detached perspective view of part of the device; Fig. 4, a transverse section on the line 1 2, Fig. 2; Fig. 5, a transverse section on the line 3 4, Fig. 2; Fig. 6, a transverse section on the line 5 6, Fig. 2; Fig. 7, a transverse section on the line 7 8, Fig. 2; Fig. 8, a transverse section on the line 9 10, Fig. 2; Fig. 9, a detached section of part of the device; and Figs. 10, 11, 12, views illustrating modifications.

A is the hand-piece casing, provided at the upper end with a screw-cap, *a*, and at the lower end with a screw-cap, *b*.

Turning in but confined to the upper cap, *a*, is a driving-spindle, B, which is connected with the driving-shaft by any suitable form of flexible power-conveyer, so as not to interfere with the free manipulation of the hand-piece.

In the upper portion of the hand-piece is guided a tubular hammer, D, in which is a recess, *d*, the opposite ends of this recess forming or being provided with cams *f* and *g*, facing in opposite directions. The lower portion of the hammer D is recessed for the reception of a disk, *h*, secured to the upper end of the spindle F, which is guided in the tubular hammer D, and has at the lower end the usual plugging-tool, *x*.

A sleeve, G, is connected by means of a coiled spring, H, to the lower end of the hammer, and from this sleeve project arms I I, which are adapted to slots *i i* in an extension of the lower cap, *b*, of the hand-piece, and are connected at their lower ends to a ring, J. The action of the spring H upon the hammer

D depends upon the manipulation of this ring J, as described hereinafter.

Projecting from the spindle B is a pin, *m*, which rotates within the recess *d* of the hammer.

When the ring J is depressed, it carries the sleeve G with it, and this, owing to the spring-connection between the sleeve and hammer, has a tendency to draw said hammer downward, the pin *m* being thus caused to act upon the upper cam, *g*, so as to elevate the hammer and stretch or impart tension to the spring H. When the hammer is released from the control of the cam, it will be depressed by the spring and will strike a downward blow on the upper side of the head *h* of the plugger-spindle; but if the ring J is elevated it will likewise elevate the hammer and bring the cam *f* under the influence of the pin *m*, so that the hammer will be depressed and the spring H will be compressed until the hammer is released from the control of the pin, whereupon it will be thrown upward by the spring, and will deliver an upward blow against the under side of the head *h*.

When the ring J is in the mid-position shown in Fig. 2, the hammer is so supported that the pin *m* rotates in the central portion of the recess *d*, and fails to exercise any influence upon the said hammer.

The force of the blow delivered depends upon the amount of tension or compression of the spring H, and this depends upon the extent to which the ring J has been moved in either direction from the mid-position, and as the ring J can be readily moved by the forefinger of the hand in which the instrument is held, it will be seen that not only can the direction of the blow be readily governed, but the force of the blow as well is under perfect control. The instrument can thus be thrown out of action while the tool is used for picking up gold and adjusting the same in the cavity of the tooth, after which, by a simple movement of the ring J, the tool-spindle may be brought under the influence of the hammer, for the purpose of compacting the gold.

If desired, cams on the driving-spindle may act upon the lugs on the hammer, as shown in Fig. 10, instead of the reverse arrangement shown in Figs. 2 and 3, and instead of regu-

lating the direction and force of the blow by the finger of the hand during the use of the tool, the sleeve G may be adjusted and held in position by means of a set-screw, as shown in Fig. 11, the construction shown in Fig. 2 being much to be preferred, however, as it places the instrument under more direct control.

Two springs may be used instead of a single spring, if desired, one spring being above and the other beneath the hammer, the sleeve G in this case terminating in an open frame, which carries the hammer and springs, as shown in Fig. 12.

I claim as my invention—

1. The combination, in a dental plugger, of the hand-piece, a driving-shaft, a tool-spindle, a hammer for acting thereon, reverse cam mechanism for actuating the hammer, a spring-support, H, for the hammer, and an adjustable spring-carrier, G, all substantially as specified.

2. The combination of the hand-piece, the driving-shaft, the tool-spindle, the hammer, reverse cam mechanism for actuating said hammer, an adjustable spring-carrier, and a spring, H, connected at one end to the carrier and at the opposite end to the hammer, as set forth.

3. The combination of the hand-piece, the driving-shaft, the tool-spindle, the hammer, reverse cam mechanism for actuating said hammer, a supporting spring, H, for the hammer, and an adjustable spring-carrier having an exposed ring, J, at the lower portion of the hand-piece, as set forth.

4. The combination of the hand-piece, the driving-shaft, having a pin, *m*, the tool-spindle, the hammer having a recess, *d*, and cams *f* and *g*, the supporting spring H, and the adjustable spring-carrier G, as set forth.

5. The combination of the hand-piece, the driving-shaft, the hammer recessed near the end, reverse cam mechanism for actuating the hammer, a hammer-supporting spring, an adjustable spring-carrier, and a tool-spindle passing through the end portion of the hammer, and having a head, *h*, contained in the recess of said hammer, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN F. CLEMENT.

Witnesses:

JOHN M. CLAYTON,  
HARRY SMITH.