

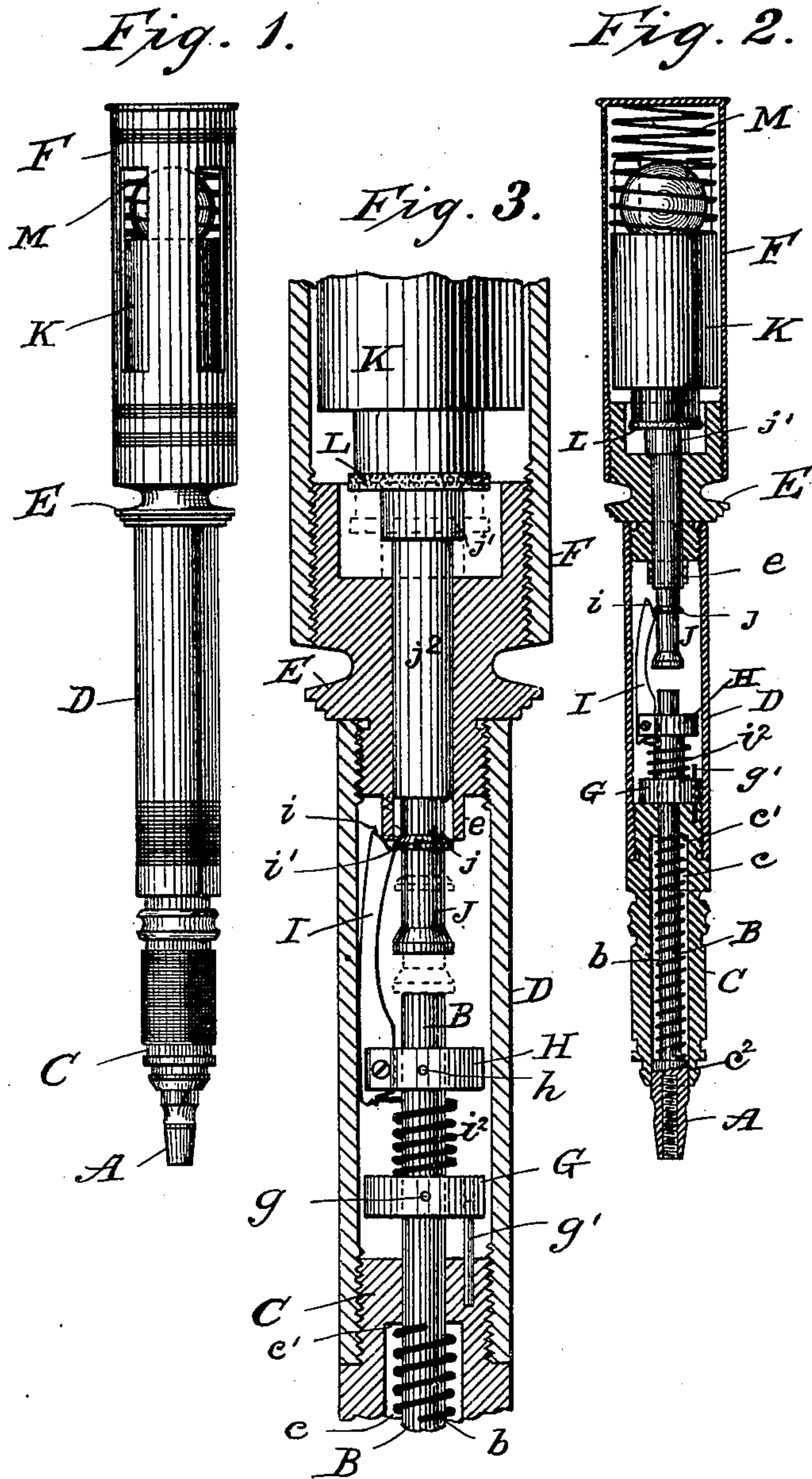
No. 665,698.

Patented Jan. 8, 1901.

W. F. SLACK.
DENTAL PLUGGER.

(Application filed June 14, 1899.)

(No Model.)



Witnesses

H. O. Stearns,
William A. Dwyer

Inventor

Willie F. Slack

By *his* Attorney *J. B. Thurston*

UNITED STATES PATENT OFFICE.

WILLIE F. SLACK, OF NORTHWOOD, NEW HAMPSHIRE.

DENTAL PLUGGER.

SPECIFICATION forming part of Letters Patent No. 665,698, dated January 8, 1901.

Application filed June 14, 1899. Serial No. 720,561. (No model.)

To all whom it may concern:

Be it known that I, WILLIE F. SLACK, a citizen of the United States, residing at Northwood, in the county of Rockingham and State of New Hampshire, have invented certain new and useful Improvements in Dental Pluggers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates more especially to instruments used by dentists when filling teeth. A mallet of this character is designed to carry variously-shaped tools which may be required for crowding gold into the cavity of a decayed tooth and is so constructed that after the operator has placed the end or working point of the tool just where desired upon the gold filling by a gentle pressure of the instrument holding said tool the latter is thumped by means of mechanism interior of said instrument, this thump being repeated with each pressure of the instrument upon the tooth. The blow or stroke thus effected must be very slight, and hence the mechanism producing it must necessarily be delicate; but no matter how delicate its construction may be the patient experiences an unpleasant sensation and even a metallic sound with each blow, which, however, is so slight as to be imperceptible to the operator or any one near by and not undergoing the operation. These sensations, however, are none the less disagreeable to the patient, and the object of my invention is to produce an automatic mallet of delicate, practical, and economical construction and one which may be used by a dentist upon a patient without producing the sensations above referred to.

The invention will be fully set forth in the following specification and claims and clearly illustrated in the drawings accompanying and forming a part of the same, of which—

Figure 1 is an elevation of my improved automatic mallet, Fig. 2 being a sectional elevation of the same. Fig. 3 is an enlarged sectional elevation showing important details of the interior mechanism of my improved mallet.

Similar reference-letters designate corresponding parts in all the views.

The tool-holder A is formed with an extended shank B, whereby said holder is so mounted in the outer or forward portion C of the casing as to be capable of longitudinal movement therein, as also in the portion D of said casing, into which it extends. The upper end of the part C is detachably connected by the tube D to a perforated block E, carrying upon its rear end an adjustable cap F, said parts C G E F constituting the frame or body of the instrument. As the last-named parts should be readily detachable one from the other, the parts C and E are shown in the drawings to be threaded within the parts D and F. The central perforation in the part C is increased in diameter, as at *c*, for the reception of the helical spring *b*, which is placed upon the shank B of the tool-holder and operates expansively between the shoulder *c'*, the part C, and the annular shoulder *c''*, formed on the forward end of said shank, as shown in Fig. 2, and a collar G, secured rigidly thereon by a pin *g*, limits the outward movement of the tool-holder A by contact with the rear face of the part C, as seen in Fig. 2, where it is shown in its normal position.

As a simple means of preventing any rotation of the shank of the tool-holder B within the part C, I show a guide-pin *g'*, which rises from the rear face of the part C, to which it is rigidly fastened, and enters either a perforation or slot formed in the collar G. Above the collar G is placed upon said shank B a collar H, rigidly secured thereon by a pin *h*, and to this collar is pivotally attached one end of the spring-actuated lever I, which lever is adapted to raise the mallet and to release the same after the delivery of the blow. The greater portion of the upper end of the lever I is beveled or curved, as at *i*, the short flat portion *i'* being formed to engage the flange or shoulder *j* of the detached mallet-plunger J, which is mounted in the block E and provided at its rear end with a head *j'*, limiting its forward motion in said block, and upon said head normally rests my improved wooden mallet K.

The stroke of the mallet-plunger J is effected by means of the beveled or curved portion *i* of the lever I, which beveled portion bears against a reduced portion *e* of the block E in its upward movement and forces said

lever outward, releasing the portion *i'* from engagement with the flange *j* of said plunger, whereupon the plunger *J* is thrown forward against the shank *B* of the tool-holder *A* by the reaction of the spring *M*, located in the rear of the mallet *K*, which is at all times under pressure of said spring, as shown in Figs. 1 and 2, whereby constant contact between said mallet and plunger is maintained.

The mallet *K* is formed of wood and is provided with a gasket of some such material as leather or rubber, as seen at *L*, and the smaller portion of the plunger *J* may be wood, said flange *j* being of metal, and it may also have a metal wearing-surface *j'*, applied as a sleeve or bushing, as shown in Fig. 3.

In Fig. 3 the lever *I* is shown in a position to nearly disengage itself from the flange *j* of the plunger *J*, while in Fig. 2 said lever and all other working parts are shown in their normal positions or as they appear before any pressure is applied to the instrument for forcing the chuck *A* and spindle *B* upward within the part *C*. A suitable spring *i'*, bearing against the lower end of the lever *I*, forces the upper end of said lever normally against the plunger *J*, so as to be in readiness to engage its flange *j*.

The force of the blow of the mallet *K* may be increased or decreased by adjusting the threaded cap *F* up or down upon the block *E*, which expands or contracts the spring *M*, and this movement of the cap *F* may be continued far enough downward to stop all motion of the movable parts, thus permitting an operator to use the instrument as a hand-pressure tool.

Having described my improvements, what I claim is—

1. A dental plugger, a spring-actuated wooden mallet, a plunger placed in a line with the wooden mallet and operated thereby, and which plunger is provided with a flange a short distance from its inner end, combined with a tool-holder provided with a shank arranged in a line with the plunger, a collar *H* secured to the shank near its inner end, a spring, and a lever pivoted to the collar and having the spring bearing against the shorter end of the lever, the free end of the lever being so shaped as to engage with the flange upon the plunger.

2. In a dental plugger, a suitable inclosing case, consisting of the adjustable cap *F* and the parts *C*, *D*, *E*, the part *E* being provided with a reduced portion *e* which extends into the part *D*, the spring-actuated mallet placed in the cap *F*, and a plunger extending through the part *E* of the frame and through the reduced portion *e*, said plunger being provided with a flange *j* which is located a short distance from its inner end, combined with the tool-holder having the shank *B*, the collar *H* secured to said shank, and the spring-actu-

ated lever pivoted to the collar *H*, the free end of the lever being so shaped as to engage with the flange *j* upon the plunger and be released therefrom by the reduced portion of said part *E*.

3. In a dental plugger, a two-part tubular casing, the perforated block *E* uniting the parts of the casing, provided with the reduced portion *e* projecting into the forward casing, and an endwise-moving spring-actuated mallet in the rear casing, combined with a plunger mounted in said casing in contact with said mallet, the forward end provided with a flange or shoulder and adapted to project through the perforations of the block *E*, and the tool-holder having a shank mounted in the forward casing and adapted to be reciprocated therein; the collars *G*, *H*, secured to the said shank, and the spring mounted on the shank between said collars, and the lever *I* pivoted to the collar *H* and adapted to be held by said spring in detachable engagement with the flange on the plunger and to be detached therefrom by coming in contact with the reduced portion of said block *E*.

4. In a dental plugger, a tool-holder provided with a spring-actuated shank, a suitable inclosing case through which the shank passes, and which is provided with a suitable recess in its forward end, combined with the collars *G*, *H*, secured to said shank and moved back and forth thereby, the pin *g'* passing through the collar *G* into the recess in the rear of the part *C* of said case and for the purpose of preventing the shank from rotating, a lever pivotally connected to the collar *H*, a plunger provided with a flange with which the said lever engages, means for automatically disengaging said lever from the plunger and reengaging the same therewith, and a spring-actuated mallet which operates the plunger.

5. In a dental plugger, a suitable inclosing casing, an endwise-moving tool-holder provided with a shank, a spring applied to said shank, the collars *G*, *H*, secured to the said shank, and a pin passing through the collar *G* and engaging with the frame to prevent the rotation of the tool-holder, combined with a spring-actuated lever secured to the collar *H*; a plunger provided with a shoulder against which the end of the lever engages, the reduced or projecting part *e* of the frame against which the end of the lever catches, a wooden mallet, a spring for operating it, and an adjustable cap by means of which the force of the blow is regulated.

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

WILLIE F. SLACK.

Witnesses:

J. B. THURSTON,
JOHN GAGE.