R. B. DONALDSON.

DENTAL-PLUGGER.

No. 192,746. Patented July 3, 1877.

Fig. 1.

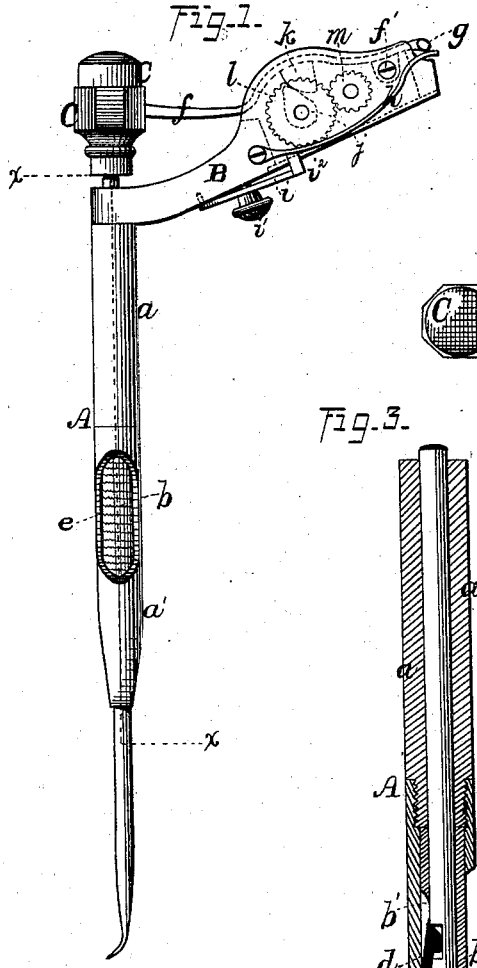



Fig. 2.

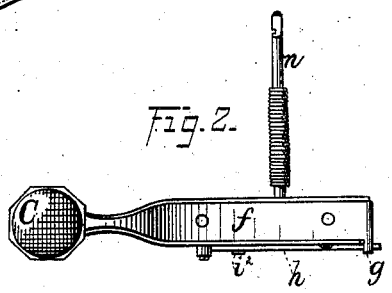



Fig. 3.

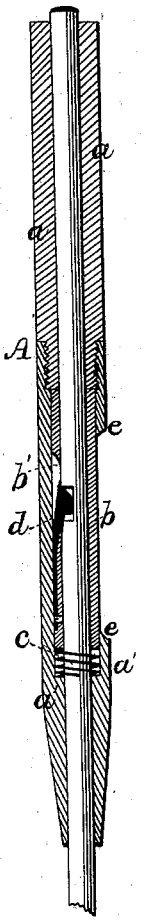
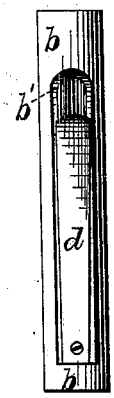



Fig. 4.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN DENTAL PLUGGERS.

Specification forming part of Letters Patent No. **192,746**, dated July 3, 1877; application filed June 1, 1877.

*To all whom it may concern:*

Be it known that I, ROBERT B. DONALDSON, of Washington, District of Columbia, have invented certain new and useful Improvements in Dental Pluggers; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is a side elevation of my improved dental plugger. Fig. 2 is a plan view thereof. Fig. 3 is a vertical section through the dotted line *x x* of Fig. 1; and Fig. 4 is an enlarged detached view, in side elevation, of the retaining device for detachably securing the plugger or other instrument in the stock or tube.

Corresponding parts in the several figures are denoted by like letters.

This invention relates to certain improvements in dental pluggers; and it consists, first, of a retaining device for manipulating and detachably securing the tool or instrument; secondly, of mechanism for obtaining a uniform and steady blow; and, thirdly, of the same for regulating the force of the blow, substantially as hereinafter more fully set forth and claimed.

In the annexed drawing, A refers to the stock or tube which receives the tool, or plugger, or other dental instrument, passing entirely through said stock and beyond it, contiguous to the external hammer, by which, it will be seen, that the blow is brought directly upon the tool itself, which is inserted in its stock so as to have an independent motion, as hereinafter described, and thus avoid the necessity of having to operate the tool by vibrating the stock by hand.

By means of my device the hammer can be operated without thus vibrating the stock, and its number of blows in a given time can be increased or diminished. For convenience in introducing the spring and retaining device, to be hereinafter referred to, the stock or tube is made in two parts, *a a'*, one having a screw entering a female screw in the other to detachably connect them together.

The internal circumference of the part *a'* is enlarged to also receive an inner short tube, *b*, surrounding the plugger or instrument, and the spring *c*, upon which the tube *b* rests, and by which a return movement is imparted to the plugger or instrument when the latter is struck by the mallet or hammer.

It will be seen that the spring acts upon the tube *b*, and it transmits the action of the spring to the instrument, the said tube being connected to the latter, as presently described. The tube *b* is provided upon one side with a slot, *b'*, for the reception, and to permit of a tooth or detent of a lever-spring, *d*, projecting into the tube or stock A. The lever-spring *d* is inserted and fastened in a tapering recess in the tube *b*, sloping toward and terminating in the slot *b'*, as seen in Fig. 3.

It will be observed that, upon the insertion into the stock or tube A of the instrument, which should first be notched or recessed, the detent or tooth of the lever-spring *d* will spring into the notch or recess of the instrument, and thus retain or secure it in place ready for use. The instrument can be as readily detached by simply lifting the detent or tooth of the lever-spring *d* out of its notch.

The tube *b* is next rotated, the stock or tube A being cut away or provided with an opening, *e*, through which the tube *b* may be reached until the lever-spring *d*, having the detent or tooth, is concealed or brought opposite the wall of the stock or tube A, when the detent or tooth of said lever-spring will be prevented from becoming disengaged from the instrument, it having thus been locked therein. To assist the rotation of the inner tube *b* by the hand it may be roughened or milled, as seen in Fig. 1.

The primary object of the inner rotary tube *b* is, it will be seen, by vibrating the same with the thumb, to manipulate the tool or instrument.

B is a case or support, attached at one end to the upper end of the stock or tube A, and having its other end more or less elevated. C is the mallet or hammer, disposed external to the stock and directly over the upper end of the plugger or instrument, and provided with a spring-lever, *f*, preferably curved and fulcrumed in the distant end of the case or support B, at *f'*, its free end having a lateral pro-

jection, *g*, against the lower side of which bears the free end of a curved or other shaped spring, *h*, fastened to the case B. This spring is caused to bear with greater or less pressure upon the mallet or hammer lever *f*, in order to regulate the force of its blow, by means of tension mechanism, consisting, in this instance, of the following parts: *i* is a plate or bar, arranged upon the lower side of the case B, about midway through which plate or bar passes a thumb-screw, $i^1$, entering the said case. The inner end of the plate or bar *i* also enters the said case, while its outer end is provided with an upright stud or projection, $i^2$, bearing against the spring *h*.

It is fully apparent that other means may be devised equally adapted for regulating the tension of the spring *h*. The hammer or mallet C is vibrated by a cam, *j*, upon an axis bearing in the case B, which strikes a pendant or projection, *k*, depending from the hammer or mallet lever *f*. Disposed upon the same axis with the cam *j* is a pinion or cog, *l*, gearing with a second pinion or cog, *m*, having its axis *n* bearing in the case B, and extending beyond the case for attachment to any suitable motor. Through this intermediate gearing it will be observed that a steady and uniform blow of the mallet or hammer is obtained.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a dental plugger, the retaining device for detachably securing the plugger or other instrument therein, consisting of the slotted tube *b*, having a lever-spring provided with a tooth or detent engaging the instrument, substantially as and for the purpose set forth.

2. The stock or tube A, having the opening *e*, in combination with the inner short tube *b*, having the lever-spring *d*, provided with a detent or tooth, substantially as and for the purpose set forth.

3. The tube *b*, resting upon and in combination with the spring C, stock A, and lever-spring *d*, having a detent or tooth, substantially as and for the purpose set forth.

4. The mallet or hammer C, having a lever, *f*, provided with a lateral projection, *g*, in combination with the support B, spring *h*, and tension-regulating device, substantially as and for the purpose set forth.

5. The external mallet or hammer C and lever *f*, having a pendant, in combination with the cam *j* and gearing *l m*, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

R. B. DONALDSON.

Witnesses:
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