

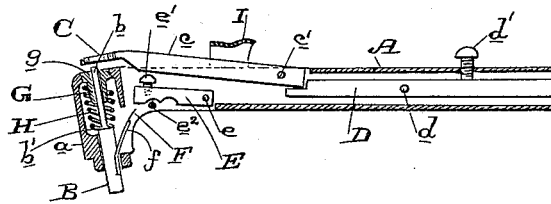
(No Model.)

H. CRAGIE.  
DENTAL PLUGGER.

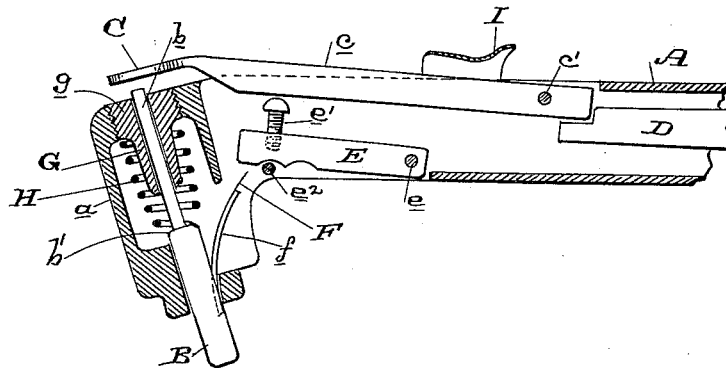
No. 420,532.

Patented Feb. 4, 1890.

*Fig. 1.*



*Fig. 2.*



Witnesses,  
Geo. H. Strong,  
J. H. House

Inventor,  
Henry Craigie  
By Dewey & Co.  
attys

# UNITED STATES PATENT OFFICE.

HENRY CRAIGIE, OF SAN FRANCISCO, CALIFORNIA.

## DENTAL PLUGGER.

SPECIFICATION forming part of Letters Patent No. 420,532, dated February 4, 1890.

Application filed May 9, 1889. Serial No. 310,151. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY CRAIGIE, of the city and county of San Francisco, and State of California, have invented an Improvement in Dental Pluggers; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to the class of dental pluggers; and my invention consists in the constructions and combinations of devices which I shall hereinafter fully describe and claim.

Referring to the accompanying drawings, Figure 1 is a longitudinal section of my dental plugger. Fig. 2 is an enlarged section.

A is the stock or handle of the instrument, having at one end a socket or seat portion *a* for the point-holder arranged at an angle with the main portion of the stock, preferably at an acute angle, as shown. In this socket or seat is fitted and adapted to slide the holder B, which is to receive the plugging-point, unnecessary herein to show. This holder is controlled and returned to position by means of a spring, the arrangement and particular operation of which will be hereinafter fully described. The upper end *b* of the holder passes through the top of the socket portion *a*, and is adapted to receive the blow of the hammer.

C is the hammer, the stem *c* of which is pivoted at *c'* in the stock of the instrument, and said hammer is caused to deliver its blow under the influence of a spring D, which is pivoted at *d* in the stock A. The end of the hammer-stem rests on the end of the spring, and the power of said spring is regulated and controlled by means of a set-screw *d'*, seated in the stock and bearing down on the spring at a point back of its pivotal center, whereby its forward end presses with more or less force under the end of the hammer-stem, thereby controlling the blow of the hammer.

Pivoted in the stock A, at *e*, is the operating-lever E, by which the hammer is raised, so that when released it will deliver its blow under the influence of its spring D. A small set-screw *e'* in the top of the lever bears up under the hammer-stem, and by its adjustment controls the distance of movement of the hammer, and the consequent length of its stroke.

Secured to the sliding plugger-point holder B is a contact-spring F, the upper end of which is adapted to come in contact with the end of lever E, so as to raise said lever into contact with the hammer as said holder moves upwardly. The end of the spring on the downward movement of the holder yields, so as to pass the lever end to resume its normal position.

The downward movement of the lever E is limited by a cross-pin *e<sup>2</sup>* in stock A, against which the lever comes in contact and remains in position ready for the next engagement of the contact-spring F. This spring is guarded and stiffened by a rigid piece *f*, secured to the holder, and which lies upon the outer face of the spring nearly up to its end, leaving said end projecting, however, so as to yield to pass the lever on its downward movement, but sufficiently stiffening it on its upward stroke so as to raise the lever and hammer.

The bearing and controlling-spring for the upper end of the holder are as follows: G is a long tubular bearing or guide, which fits upon and about the upper end *b* of the holder, and is secured in the socket or seat portion *a* of the stock in suitable manner, here shown by means of a threaded flange *g* on its upper end. A spiral spring H encircles the tubular bearing and the lower portion of end *b* and rests between the flange *g* of the bearing and a shoulder *b'* of the holder. A finger-rest I is secured to the stock just over the hammer-stem, and sufficiently raised therefrom or grooved underneath to avoid interference with the movement of the hammer. This rest is conveniently located for the application and pressure of the finger.

The operation of the instrument is as follows: The point being forced upon the material to be condensed, the stock moves forwardly, its socket end *a* sliding over the holder until the end of the lever E, coming in contact with the projecting end of contact-spring F, is thereby temporarily arrested, while the stock, continuing its movement, carries the hammer-stem into contact with the set-screw *e'* of said lever, thereby arresting the hammer and allowing the stock to move forward from it. Then the contact-spring F, slipping its engagement with the lever, frees said lever, and the hammer, under the power of its spring,

delivers its blow on the end *b* of the plugging-point holder. Then the spring *H* returns the holder to primary position. These are the true movements, though for the sake of clearness it may be well to state that the apparent operation is as follows: The point being pressed on the gold, the holder is thereby forced upwardly, so that its contact-spring *F*, bearing on lever *E*, forces said lever upwardly, and this in turn forces the hammer upwardly, which, when relieved by the slipping by of the contact-spring, delivers its blow. The placing of the socket or seat portion *a* at an angle with the stock or main portion of the handle provides for the use of the instrument in filling posterior cavities of molar and bicuspid teeth, and yet makes it possible to deliver a direct blow upon the point. The placing of said socket or seat portion at an acute angle provides for the more ready slipping of the engagement of the contact-spring *F* and lever *E*, the former moving on an incline away from the latter, the end of which moves on an arc of a circle. The blow is a positive one, being struck by a solid hammer on the end of a short holder, instead of a springing blow.

The stiffening-piece *f* for spring *F* is essential to prevent the spring from yielding except when contact is made with its under side on the downward stroke. A spring unguarded would have too great flexibility, and would hold the lever longer at one stroke than at another by being bent toward or from said lever. The holder should have a long bearing in the socket or seat portion of the stock, and there should also be a spiral spring to return the holder to primary position; but this spring, ordinarily, takes up too much room. By my construction the long tubular bearing *G* serves the first requirement, and the location and arrangement of the spring about said bearing avoids the objection last stated.

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

1. In a dental plugger, a stock and a plugging-point holder seated in the end of said stock and at an acute angle therewith, in combination with a hammer pivoted in said stock and mounted in the line thereof, whereby it

delivers a direct blow on said holder, a spring pivoted in said stock and lying in line therewith, its end bearing under the rear end of the hammer-stem, and a set-screw in the stock for governing said spring, substantially as described. 55

2. In a dental plugger, a stock and a spring-controlled plugging-point holder seated in the end of said stock and at an angle therewith, in combination with a spring-controlled hammer carried by the stock and arranged to deliver a blow on said holder, a lever pivoted in the stock and adapted to force said hammer to position to deliver its blow, and a spring contact-piece carried by the plugging-point holder adapted to operate and to trip said lever, substantially as described. 60 65

3. In a dental plugger, a stock and a spring-controlled plugging-point holder seated in the end of said stock and at an angle therewith, in combination with a spring-controlled hammer carried by the stock and arranged to deliver a blow on said holder, a lever pivoted in the stock and adapted to force said hammer to position to deliver its blow, a contact-spring carried by the plugging-point holder adapted to operate and to trip said lever, and a rigid strip carried by said holder for stiffening the body of the contact-spring and governing the movement of its contact end, substantially as described. 70 75 80

4. In a dental plugger, a stock and a plugging-point holder seated in the end of said stock and at an angle therewith, in combination with a spring-controlled hammer carried by said stock and arranged to deliver a blow on said holder, a lever pivoted in the stock and adapted to force said hammer to position to deliver its blow, a set-screw mounted in said lever for governing its contact with the hammer and varying the length of its stroke, and a spring contact-piece on the plugging-point holder for operating the lever, substantially as described. 85 90 95

In witness whereof I have hereunto set my hand.

HENRY CRAIGIE.

Witnesses:

W. R. WRIGHT,  
J. H. BLOOD.