

(No Model.)

H. A. EDGECOMB.
DENTAL PLUGGER OR Mallet.

No. 574,025.

Patented Dec. 29, 1896.

Fig. 1.

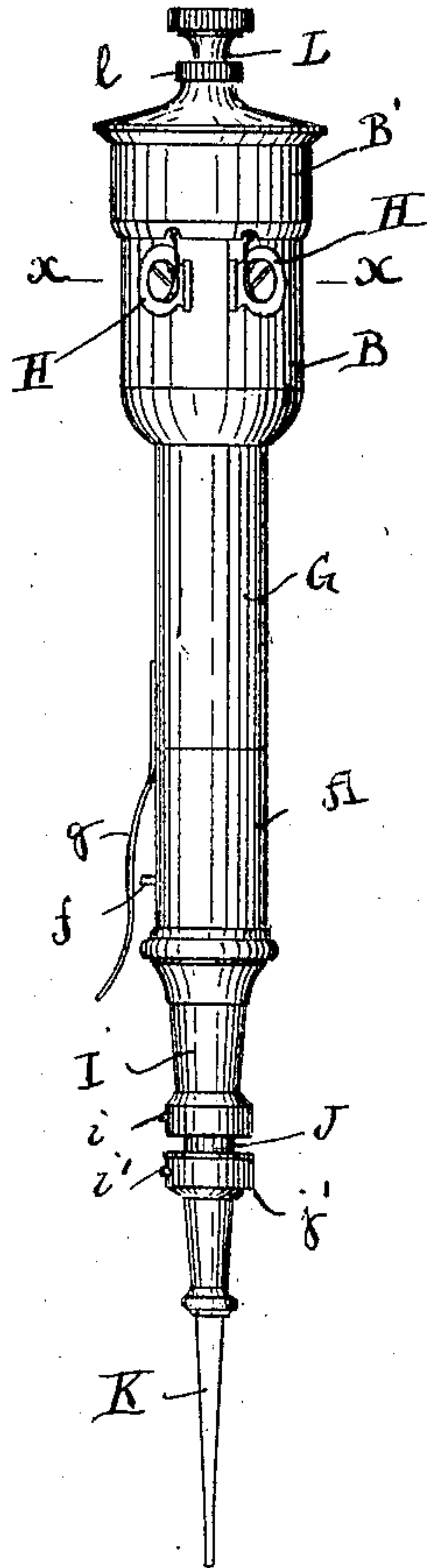


Fig. 2.

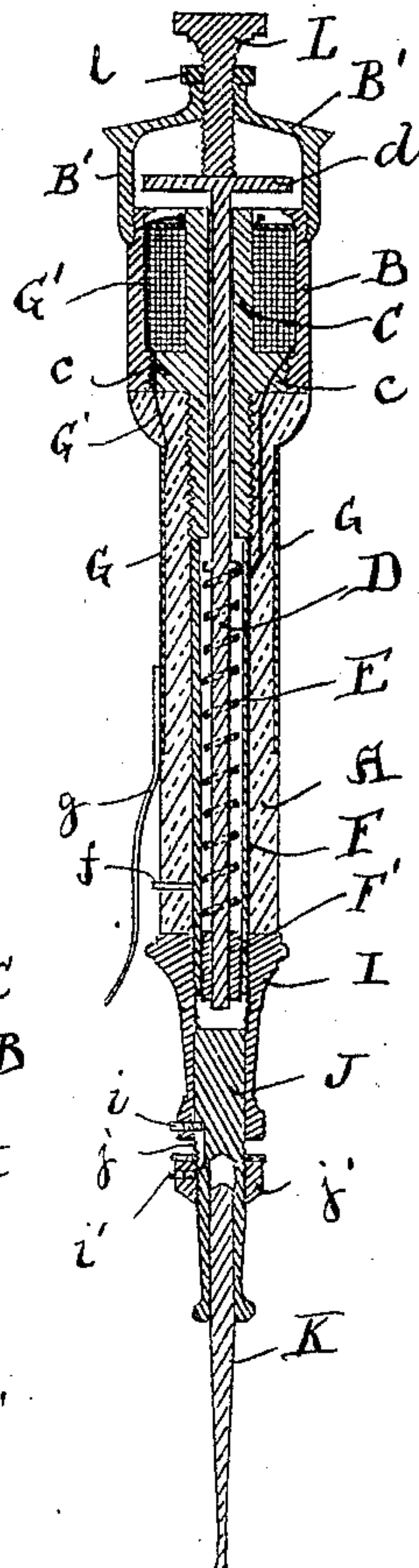


Fig. 3.

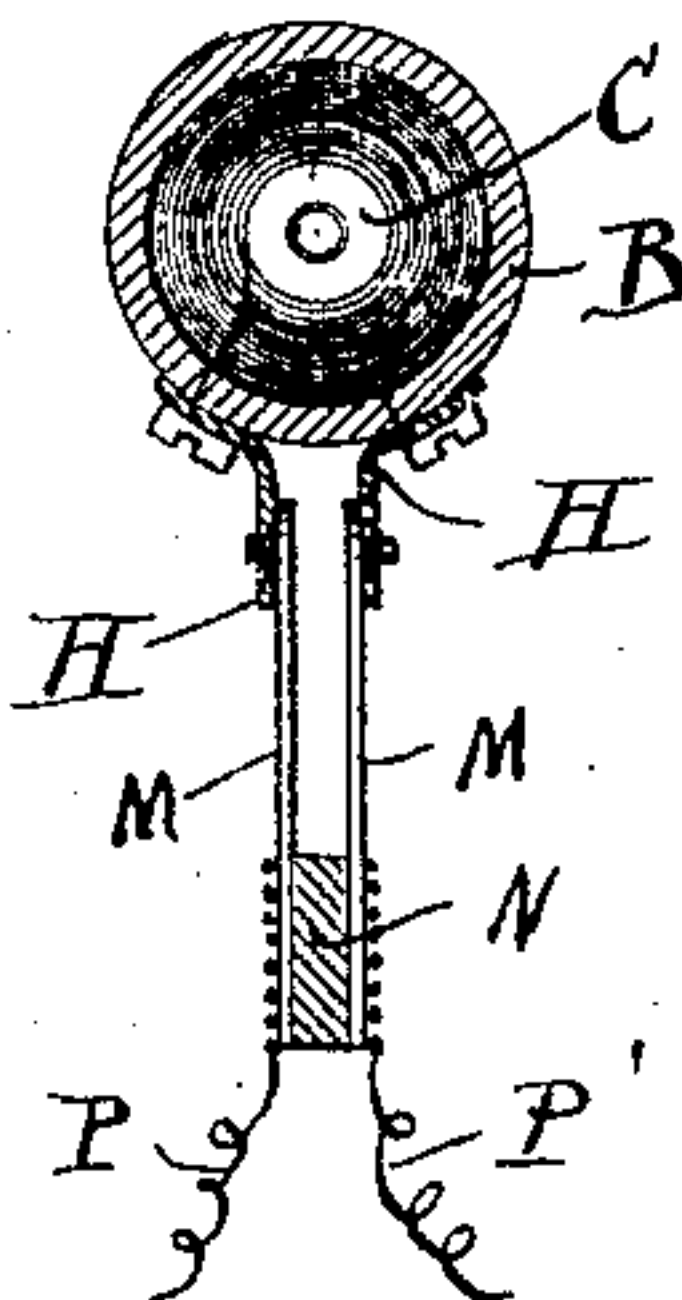
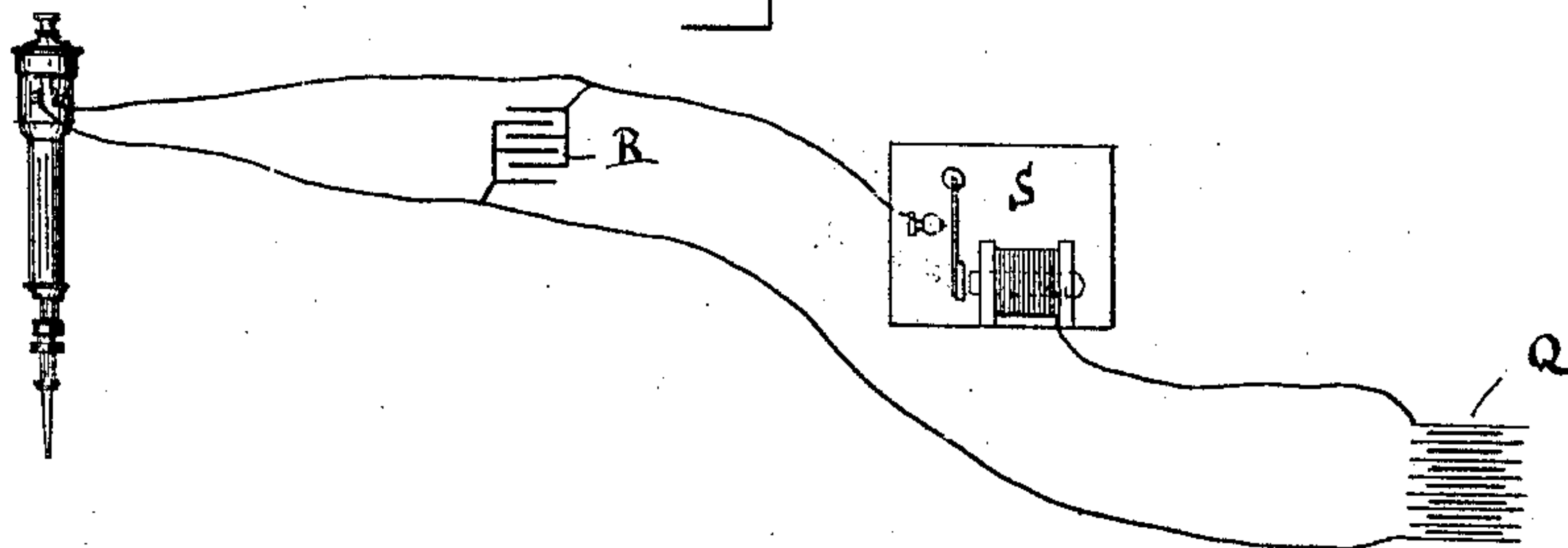


Fig. 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

HARRY A. EDGECOMB, OF MECHANIC FALLS, MAINE, ASSIGNOR OF ONE-HALF TO HOWARTH STANSFIELD, OF HAVERHILL, MASSACHUSETTS.

DENTAL PLUGGER OR MALLET.

SPECIFICATION forming part of Letters Patent No. 574,025, dated December 29, 1896.

Application filed September 25, 1895. Serial No. 563,603. (No model.)

To all whom it may concern:

Be it known that I, HARRY A. EDGECOMB, a citizen of the United States, residing at Mechanic Falls, in the county of Androscoggin and State of Maine, have invented certain new and useful Improvements in Dental Pluggers or Mallets, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to certain improvements in electromagnetic dental pluggers or mallets; and it consists in certain details of construction, as hereinafter fully described, and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 represents a side view of a dental plugger or mallet embodying my invention. Fig. 2 is a vertical section of the same. Fig. 3 is a horizontal section taken on line *xx* of Fig. 1. Fig. 4 is a view showing the plugger or mallet condenser, vibrator, battery, and connections.

A represents the body of the plugger or mallet, which is formed of hard rubber, to the upper portion of which is secured an electromagnet consisting of an outer barrel of soft iron B, flaring inward at its upper edge, thus increasing the area of the magnetic field. In this barrel B is secured a hollow core of soft iron C, having a flange *c*, that fits tightly into the barrel B, thus bringing the poles of the magnet on a parallel plane in circular form. A rod D, of non-magnetic metal, passes through the central hole of the core C, said rod D having at its upper end a disk armature *d* of soft iron, and below the magnet said rod is surrounded by a spiral spring E, which holds up said rod so that the armature *d* in its normal position is away from the magnet, that is, when a current is not passing through the coil of the magnet.

A metal tube F is secured to the lower end of the core C and passes down through the body A, and in the lower end of this tube is fitted a hollow screw F', whereby the tension of the spring E can be regulated as required, and to this tube F is secured one end of the wire that is coiled around the core C, and to said tube is also attached a contact-piece *f*, that passes out through the side of the body A.

Around the outside of the body A is fitted a metal tube G, to which is attached a spring contact-piece *g*, and to said tube is connected one end of the leading-out wire G'. 55

Two ears H H are secured to but insulated from the barrel B, and to one of said ears the end of the magnet-coil is attached, said end passing through a small hole in the barrel, and to the other end is attached the upper end of the leading-out wire G', which also passes out through a small hole in said barrel, at the other end being in contact with the outer tube G. 60

To the lower end of the body A is secured, by means of a screw-thread on the end of the inner tube E, the chuck-holder I, in which the chuck J is free to slide, the same being guided in a straight line by a screw *i*, the end of which enters a slot *j*, cut in the side of said chuck J. The mallet-point K is held in the chuck J by a screw in the usual manner, so that any desired point or tool can be employed. The force of the stroke is regulated by a ring *j'*, that can be adjusted upon the chuck J, as required, and then secured by a small screw *i'*. 65 70 75

The top of the magnet and armature is inclosed by a cap or cover B', of non-magnetic material, and in order to regulate the length of the blow a screw L is passed through said cap B', so as to limit the travel of the disk armature, said screw being held in place by a check-nut *l*. 80

To form a circuit with the battery, I employ spring contact-pieces M M, that are readily attached to the ears H H by pins on their outer ends passing through holes in said ears H. The outer ends of these contact-pieces are secured to a block N, and they are also attached to the battery-wires P P'. 85 90

In order to deliver blows of equal power at rapid intervals, I arrange in circuit between the plugger or mallet and the battery Q an automatic circuit maker and breaker S and a condenser R in parallel, as shown in Fig. 4. 95

To operate the plugger or mallet, the operator takes the instrument in his hand, with his thumb or finger upon the contact-spring *g*. He then places the point against the gold filling and presses upon the spring-contact *g*, so that it comes into contact with the point *f*. Thus a circuit is formed through the 100

coil of the electromagnet, the circuit-breaker and battery thus magnetizing the magnet, which then draws down the disk armature *d* and rod *D*, the end of which strikes a blow 5 upon the inner end of the chuck *J*, and by means of the vibrator *S* the circuit will be made and broken automatically so long as the spring-contact *g* is held to point *f*. Thus the blows will be delivered in quick succession 10 and with equal force, the spring *E* raising the rod *D* and disk armature *d* each time the circuit is broken by the circuit-breaker.

What I claim is—

1. In an electromagnetic dental plugger or 15 mallet a magnet consisting of a barrel of soft iron flaring inwardly at its upper end and a hollow core of soft iron having a flange that fits in said barrel the said core being wound with insulated wire substantially as set forth.

20 2. In an electromagnetic dental plugger or mallet a magnet consisting of a barrel of soft iron a hollow core of soft iron having a flange that fits said barrel, said core being wound with wire, contact-ears secured to the outside 25 of said barrel but insulated therefrom to which ears the leading-in and leading-out wires are attached substantially as set forth.

3. In an electromagnetic dental plugger or 30 mallet, a body having an outer metal tube, an electromagnet on the top of said body said

magnet consisting of a barrel and a hollow core having a flange to fit into said barrel, the core extending down into the body and having a metal tube attached to the end thereof, 35 a coil of wire around said core one end of which is connected with a contact-point that passes out through the body and the other end connected to one ear on the barrel, and a wire one end of which is connected to another ear on said barrel and to the outer tube, and 40 a spring-contact to close the circuit substantially as set forth.

4. An electromagnetic dental plugger or 45 mallet having a magnet with a hollow core at its upper end, an armature on the end of a rod of non-magnetic material that passes through said hollow core, whereby the blow is delivered by the end of the rod directly upon the chuck, when the circuit is complete, and a spring surrounding said rod for raising 50 the armature when the circuit is broken, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 22d day of 55 May, A. D. 1895.

HARRY A. EDGECOMB.

Witnesses:

HARRY J. COLE,
BRAM STANSFIELD.