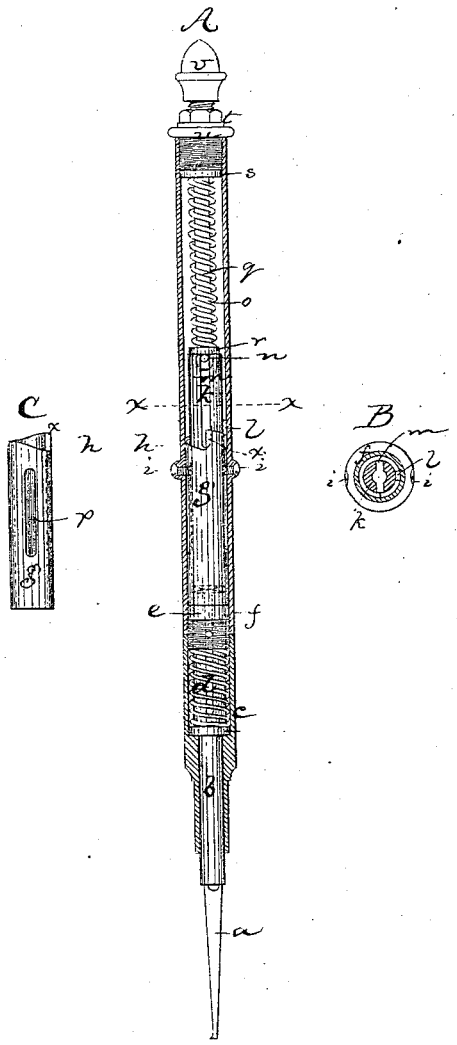
J. T. CODMAN.

Dental-Mallet.

No. 162,154. Patented April 20, 1875.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN T. CODMAN, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN DENTAL MALLETS.

Specification f rming part of Letters Patent No. **162,154**, dated April 20, 1875; application filed March 29, 1872.

To all whom it may concern:

Be it known that I, JOHN T. CODMAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Dental Mallet; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The invention relates to the construction of that class of dental mallets (sometimes called pluggers) in which percussive blows are given to the hammer by mechanism directly contained within the stock or handle, the blow being generally effected (or in such instruments as are in common use) by pressure upon the stock or handle in a direction toward the hammer end, (when the filling is to be compacted by forward pressure,) or by drawing upon the stock or handle when a hook is used, and the pressure is to be produced by blows tending to drive the hook against the filling.

My invention consists in uniting in the same implement means for converting rotary motion into a reciprocating movement and means for varying the force of the blow by end pressure upon the tool.

The drawing represents an instrument embodying the invention.

A shows the instrument in side elevation, with part of the case or handle broken away to disclose the interior. B is a sectional view of the instrument on the line *x x*. C is a view of the cam-ring or sleeve. *a* denotes the hammer or plugger point, having a shank, *b*, which is contained and slides within a socket or sleeve, *c*, it being pressed forward normally by the stress of a suitable spring, *d*, and a collar or shoulder, *e*, forming a stop to limit the extent of forward movement. The rear end of this sleeve is screw-threaded, and is coupled to a nut-thread in the end of a tubular handle, *f*. Within the handle *f* is a cam-ring, *g*, at the upper end of which is a cam-incline, *h*, this cam-ring fitting and sliding with the handle, and having a capability of movement limited by means of a slot or slots, *p*, in the ring and a pin or pins, *i*, which extend from the inner side of the handle into the ring-slots, the pins and slots acting as guides, permitting the end movement of the ring and keeping it from rotation. Within this ring plays a piston-plunger or striker, *k*, said piston having a stud, *l*, that rides against the cam end of the ring. The upper end of the plunger is slotted through, as seen at *m*, and sliding in the slot is a pin, *n*, extending through a stem, *o*, the stem sliding in the center of the slot, and the pin *n* causing the piston to rotate when the stem is rotated. On this stem *o* is a spring, *q*, bearing at one end against a collar, *r*, and at the other end against a fixed collar or flange, *s*, between which flange and a nut, *t*, is a screw-cap, *u*, which screws into the nut-threaded end of the handle. The stem turns loosely in this cap, and has at its outer end a cap, *v*, or other suitable device by which it may be freely turned by the fingers of the operator.

When the parts are in normal position the cam-ring is pressed forward by the pressure of the stud *l* on the end of the cam-ring, the plunger being pressed forward by the stress of the spring *q* acting against the collar, said collar bearing against the top of the plunger. As the cap or top is turned the plunger is thrown forward by the stress of the spring each time the plunger-stud *l* passes the shoulder *x* of the cam; and if the collar *e* at the rear end of the hammer-shank be against the forward end of the cam-ring, the blow of the plunger, in its driven-forward movement, will be against the rear end of the hammer, but with a minimum force. If, however, the cam-ring be forced back in its slots, by presing the hammer-point against the filling, the stress of the spring against the plunger, and of the plunger against the hammer, will be increased, so that when the cap *v* is rotated, and the stud *l* passes the shoulder *x* of the cam-ring, the forced blow of the plunger against the hammer will be more intense, so that, as will readily be seen, the force of the blow is regulated and graduated by the simple forward pressure of the instrument by the operator, the blows being always similarly effected by rotation of the plunger.

The details of construction may be greatly varied or modified, the essentials being a hammer and devices by which the force of the blow is increased proportionately to the pressure of the operator upon the instrument, and a construction by which the percussive blows are

effected by rotation of some part of the instrument. The hammer and handle are brought to normal position by the stress of a suitable spring, *z*.

In using a hook for a hammer and effecting the pressure by pulling back instead of by pressing forward, the principle of construction and method of operation are much the same, the cam-ring being reversed and the plunger-stud being drawn against the cam-surface instead of pressed forward against it.

By rotating the instrument, or part of it, to effect the blow, power may be readily applied to produce the rotation.

I claim—

The combination, in a dental mallet or plugger in which rotary is converted into a reciprocating motion, and in which the blow is effected by means of a spring upon a plunger or driver, of an arrangement whereby the force of the spring is varied in accordance with end pressure upon the tool, substantially as described.

JOHN T. CODMAN.

Witnesses:
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