

(No Model.)

J. W. NORWOOD.
DENTAL PLUGGER.

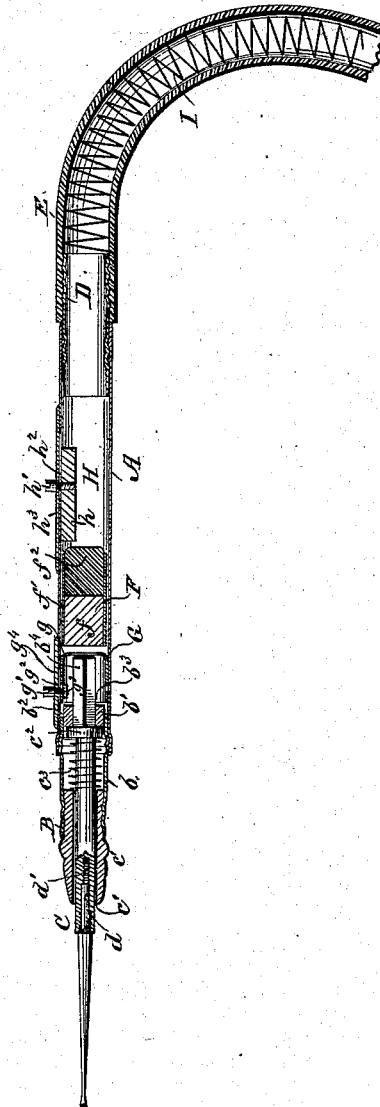
No. 293,501.

Patented Feb. 12, 1884.

Fig. 1.



Fig. 2.



WITNESSES:

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DENTAL PLUGGER.

SPECIFICATION forming part of Letters Patent No. 293,501, dated February 12, 1884.

Application filed July 18, 1883. (No model.)

To all whom it may concern:

Be it known that I, JESSE W. NORWOOD, of Greenville, in the county of Greenville and State of South Carolina, have invented a new and useful Improvement in Dental Pluggers, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, forming part of this specification.

My invention relates to certain improvements in pneumatic dental pluggers, as hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of my improved dental plugger. Fig. 2 is a longitudinal section of the same.

A indicates the tubular handle of the pneumatic plugger, B the nose-piece screwing into one end thereof and carrying the movable tool-holder C, and D the tube connecting the flexible air-tube E with the other end of the handle. The nose-piece B is formed of a sleeve, *b*, having a stationary plug, *b'*, in one end, which projects slightly from said end to form a shoulder, *b''*, and is provided with a square orifice, *b'''*, to receive the squared end *b''* of the tool-holder C and prevent it from turning while the tool is being screwed therein, and of a movable plug, *c*, screwing into the lower end of sleeve *b*, and having a central cylindrical bore, *c'*, for receiving the lower end of the tool-holder. The tool-holder C is provided near its upper end with an annular shoulder, *c''*, between which and the movable plug *c* is arranged a spiral spring, *c'''*, for retracting the tool and its holder after each blow of the mallet. The lower end of the tool-holder is provided with a socket, *d*, which is screw-threaded at its outer end, and has its inner end reduced and provided with a screw-thread, *d'*, to adapt it for tools having shanks of different sizes.

F indicates the pneumatically-operated mallet, which is adapted to reciprocate in the tubular chamber of the handle in such manner as to deliver a succession of blows upon the upper end or anvil of the tool-holder. I form the mallet with a soft-metal core, *f*, which is incased in a cylindrical sheath or tube, *f'*, of hard metal, which tube is open, particularly at the lower end, to allow the core alone to act upon the anvil of the tool-holder.

I am aware that a hand-mallet for dental pluggers has been formed of a hard-metal case or holder filled with soft metal, and I do not claim this idea, broadly. In my invention the mallet operates as a piston in the hollow handle, and the chief object of the sheath *f'* is to take the frictional wear which would rapidly reduce the soft metal. It is necessary, therefore, that the holder of the soft metal shall be adapted to form an air-tight joint with the chamber of the handle, and to this end the cylindrical sheath *f'* is essential, as distinguished from the flaring or doubly-conical holder heretofore used.

f'' is the usual rubber cushion at the upper end of the mallet to break the effect of the rebound of the mallet against the stop at the upper end of the chamber.

In picking up a piece of filling material with the point of the tool to insert it into a cavity in a tooth, it is important that the action of the mallet shall be suspended for the time without disconnecting the plugger from the motor. This is important, because the tool can be used better for this office when at rest. I therefore provide a short tube, G, which is fitted to slide in the lower end of the tubular handle A and over the anvil of the tool-holder C, and which is provided with a flange, *g*, adapted to serve as a stop for the mallet when moved against the latter. This tube G is connected to a screw, *g'*, which is inserted through a longitudinal slot, *g''*, in the handle A, from the outside, and secured by a nut, *g'''*, arranged inside the said tube. A curved bearing-plate, *g''''*, is connected to the screw and arranged on the outside of the tubular handle over the slot *g''*, in such manner as to form an air-tight joint. The screw serves as a finger-piece by which the sleeve may be quickly operated to suspend the action of the mallet on the anvil.

I do not broadly claim a stop which is connected to an exterior bearing-plate by a pin or screw extended through a longitudinal slot in the handle, such a construction being common in tripping devices for mechanically-operated dental mallets.

I am also aware that a stop for suspending the action of a pneumatically-operated mallet on the tool-holder is not broadly new, and I only claim a stop of the particular construc-

tion which I have herein shown and described. The stop formed by the tube G is adapted to distribute the frictional wear over a greater area and to give the device greater ease of movement, while it also bears equally upon the end of the mallet and prevents wearing the same away at one side. I also provide a similar movable stop, H, at the opposite end of the mallet, consisting of a nut, *h*, of any suitable shape or size, which is arranged inside the tubular handle A, near its upper end, and connected to a screw, *h'*, which is inserted through a slot, *h²*, in said handle, and adapted to be operated from without by a finger of the hand holding the instrument. The tube G may also be used in this form of the stop, if desired. This screw is also provided with a bearing-plate, *h³*, which in this case serves also the indispensable purpose of closing or covering the longitudinal slot *h²* to prevent the escape of the air. By a proper adjustment of the screw the device may be worked very easily and quickly without interrupting the operation of filling a tooth. In this manner the stroke of the mallet is regulated at will by a finger of the hand holding the plugger.

To hold the rubber tube E open at its upper end to prevent doubling, which would obstruct the free passage of air, I arrange a spiral spring,

I, in the same at the end, where it is connected to the tube D in the usual manner.

What I claim is—

1. The tool-holder C, having squared end *b⁴*, annular shoulder *c²*, and threaded socket *d*, having a reduced portion provided with a separate screw-thread, substantially as shown and described.

2. The dental mallet consisting of the cylindrical hard-metal sheath *f'*, the soft-metal core *f*, arranged in one end thereof, and the rubber cushion *f²*, arranged in the opposite end of the sheath, substantially as shown and described.

3. The mallet-stop consisting of the tube G, the curved bearing-plate *g⁴*, and a connecting-screw, *g'*, substantially as shown and described.

4. The combination of the tool-holder having the squared anvil and collar, the nose-piece having the sleeve provided with stationary plug having a squared orifice, and the movable plug screwing into the lower end of the sleeve, and the spiral spring arranged between said collar and movable plug, substantially as shown and described.

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Witnesses:

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 SOLON G. KEMON.