

(No Model.)

C. P. GRAY.
DENTAL PLUGGER.

No. 466,961.

Patented Jan. 12, 1892.

Fig. 1.

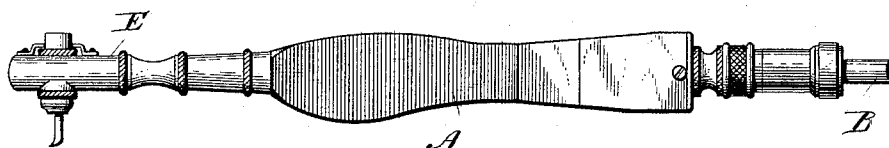


Fig. 2.

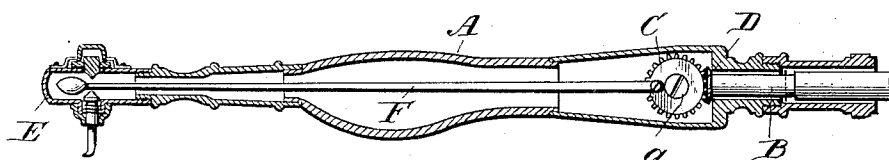


Fig. 3.

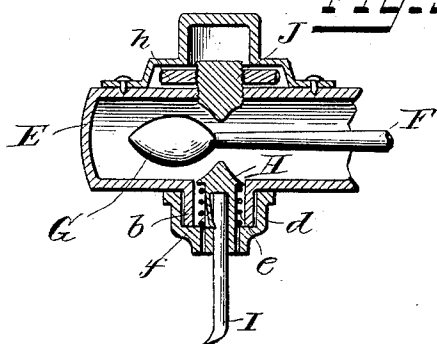
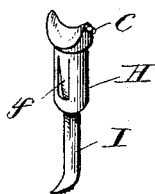


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

CHARLES P. GRAY, OF MADISONVILLE, OHIO.

DENTAL PLUGGER.

SPECIFICATION forming part of Letters Patent No. 466,961, dated January 12, 1892.

Application filed October 7, 1891. Serial No. 407,986. (No model.)

To all whom it may concern:

Be it known that I, CHARLES P. GRAY, a citizen of the United States, residing at Madisonville, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Dental Pluggers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of pluggers in which the plugging-tool is arranged at approximately right angles to the end of the hand piece or holder; and it has for its object the improved construction of such pluggers.

The novelty of my invention will be hereinafter set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a plugger embodying my invention. Fig. 2 is a corresponding view in central section. Fig. 3 is an enlarged sectional detail of the plugging mechanism. Fig. 4 is an enlarged perspective of the plugging-tool and its holder.

The same letters of reference are used to indicate identical parts in all the figures.

A is a hollow hand piece or holder of the usual or any suitable construction and having journaled in one end the driving-shaft B, which is rotated by any suitable dental engine, with which it is coupled in the usual or any suitable manner. Journaled in the hand-piece on a stud *a*, adjacent and transverse to the inner end of the shaft B, is a beveled pinion C, with which meshes a smaller pinion D upon the shaft B. (See Fig. 2.)

Screwed upon the opposite end of the hand-piece is a small tube E closed at its end. Pivoted to a pin upon the pinion C is one end of a rod or pitman F, whose opposite end extends into the tube E, and has secured thereon an egg-shaped or double-tapered hammer-head or striking device G, preferably round in cross-section, and the under side of each end of which constitutes a striking-face.

Upon the under side of the tube E is an exteriorly threaded boss *b*, Fig. 3, with a corresponding opening or perforation into the tube. Guided in this boss, and extending into the tube, is the tool-holder H, Fig. 4, having its upper end, within the tube, beveled on each

side and slightly concaved to conform to the shape of the hammer-head G, as shown in Fig. 4. A pin *c*, Fig. 4, on the tool-holder engages a suitable slot in the boss to prevent the holder from turning, but not interfering with its reciprocal play. A coiled spring *e* surrounds the body of the tool-holder, and it and the tool-holder are held in place by a collar *d*, screwed on the boss *b*. This spring serves to retract the tool-holder and tool after each stroke of the hammer-head. The plugging-tool I is inserted in the shank of the holder H and is retained in place by a spring *f*, engaging a notch in the tool.

Inserted through an aperture in the tube E just over the tool-holder is a plug J, in this instance square in cross-section and threaded on its edges to engage a milled nut *h*, screwed upon it and confined between the outer surface of the tube and a covering-cap *i*, secured thereto. The under side of the plug J is beveled and curved to correspond to the shape of the head of the tool-holder.

The purpose of making the plug square in cross-section and the hole in the tube through which it passes of a corresponding shape is to prevent turning of the plug while permitting it to be adjusted up and down, to project more or less into the tube by turning the nut *h*, as will be readily understood. Any other suitable means for adjusting the plug may, however, be employed.

It will be seen from the above description that the rotation of the shaft B will cause the reciprocation of the pitman F and hammer-head G, which latter is drawn back and forth across the axial line of the tool between the head of the holder and the inner end of the plug J, thereby imparting a sharp blow to the tool-holder and tool in its passage in each direction and forcing the tool outward each time a distance determined by the adjustment of the plug J. After each stroke of the pitman F and hammer-head G the spring *e* retracts the tool.

So far as my invention, broadly considered, is concerned, the tool and tool-holder might be one, the only purpose of having them separate being to enable the tools to be readily changed to suit the character of the work to be done. It will also be understood that the only purpose of the adjustable plug J is to

regulate and vary the stroke of the tool; and while this is desirable, yet my invention is not restricted to the employment of such plug, and the latter may be dispensed with
 5 entirely, if desired. In such case the upper side of the hammer-head could be arranged to play back and forth in any suitable guide or could bear directly against the inner surface of the tube E; nor do I wish to be restricted to the employment of the hammer-head G, which I have shown in the drawings, since other suitable striking devices, either
 10 carried by or connected with the pitman F, may be employed in its stead.

15 I am aware that dental pluggers having the tools arranged at right angles to the hand-piece are old, and in some instances the tool has been actuated by a reciprocating rod operated by the driving-shaft; but I am not
 20 aware of any prior device in which the end of the reciprocating rod itself moved or was connected with a striking device which moved back and forth across the axial line of the tool and delivered a blow to the latter in its
 25 passage in each direction; nor do I know of any prior device of this character in which the extent of the stroke of the tool could be regulated at will.

Having thus fully described my invention,
 30 I claim—

1. In a dental plugger, the combination of the tool arranged at right angles to the hand-piece, and a striking device provided with two striking-faces and reciprocating across
 35 the axial line of the tool and delivering a blow thereto in its movement in each direction.

2. In a dental plugger, the combination of the tool arranged at right angles to the hand-
 40 piece, the two-faced striking device reciprocating across the axial line of the tool and delivering a blow thereto in its passage in each direction, and means for adjusting the stroke given the tool by the striking device.

3. In a dental plugger, the combination of the tool arranged at right angles to the hand-
 45 piece, the reciprocating pitman-rod provided with a two-faced hammer-head or striking device playing back and forth across the axial line of the tool and delivering a blow thereto
 50 in its passage in each direction, and the driving-wheel for the pitman-rod geared to the driving-shaft.

4. In a dental plugger, the combination of the tool arranged at right angles to the hand-
 55 piece, the reciprocating pitman-rod provided with a two-faced striking device playing back and forth across the axial line of the tool, the driving-wheel for the pitman-rod geared to the driving-shaft, and the adjustable plug or
 60 buffer co-operating with the striking device to regulate the stroke of the tool.

5. In a dental plugger, the combination of the hand-piece A, the driving-shaft B, the wheel C, geared thereto, the pitman F, provided with the two-faced hammer-head G, the
 65 tool-holder H, and tool I, arranged at right angles to the hand-piece, and the retracting-spring *e* applied to the tool-holder.

6. In a dental plugger, the combination of the hand-piece A, the driving-shaft B, the wheel C, geared thereto, the pitman F, provided with the two-faced hammer-head G, the tool-holder H, and tool I, the retracting-spring
 70 *e*, and the adjustable plug J.

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Witnesses:

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