

No. 712,813.

Patented Nov. 4, 1902.

F. W. KORB.
DENTAL PLUGGER.

(Application filed Nov. 5, 1900.)

(No Model.)

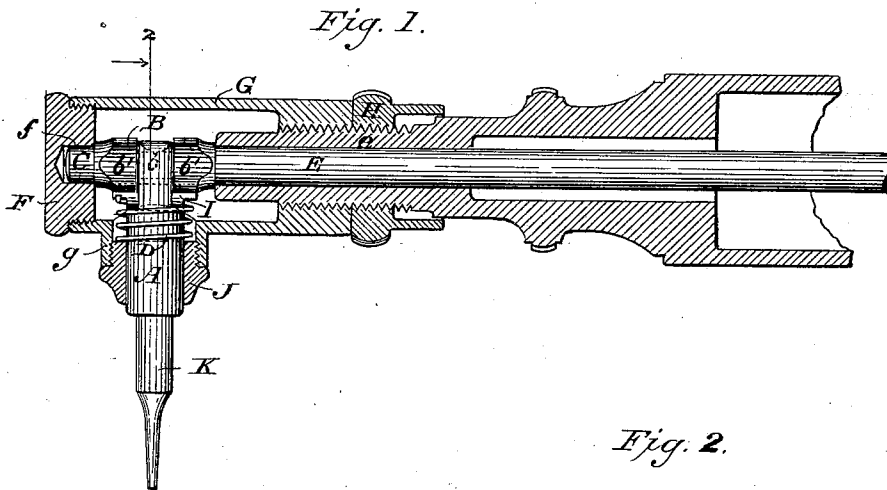


Fig. 2.

Fig. 3.

Fig. 4.

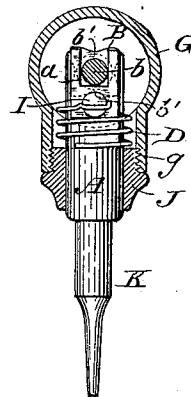
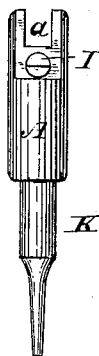
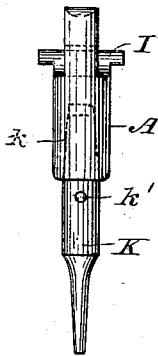
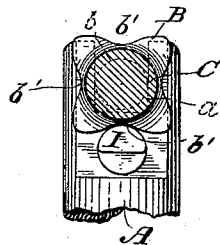


Fig. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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DENTAL PLUGGER.

SPECIFICATION forming part of Letters Patent No. 712,813, dated November 4, 1902.

Application filed November 5, 1900. Serial No. 35,451. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK WILLIAM KORB, a citizen of the United States, residing at Cleveland, Cuyahoga county, Ohio, have
5 invented certain new and useful Improvements in Dental Pluggers, of which the following is a specification that will enable those skilled in the art to which my invention pertains to make and use the same.

10 My invention relates to dental pluggers of the class operated by a revolving shaft, which may be driven by a dental engine or other suitable means. Its objects are to provide an instrument in which the line of the plug-
15 ger-tool and the direction of its blow may be at an angle to the axial line of the supporting-handle and its driving-spindle and in which said angle may be fixed permanently or through a modification varied at pleasure,
20 to multiply the number of reciprocations of the plugger-tool over the revolutions of the actuating spindle, and to construct a plugging instrument that will be simple, durable, easily handled, and cheaply made.

25 My invention consists in the various combinations of parts and specific constructions hereinafter set forth in this specification and the accompanying drawings, forming a part hereof, and particularly pointed out in the
30 claims.

In the drawings I have shown the features of my invention in the forms now considered most desirable by me; but changes might be made therein and some of the parts used with-
35 out others within the skill of a good mechanic and not requiring the exercise of invention without departing from the spirit of my invention as set forth in the claims at the end of this specification.

40 Figure 1 is a central longitudinal section through a portion of an instrument embodying my invention in the form of a fixed right-angular dental plugger. Fig. 2 is a transverse section of the same on the line 2 of
45 Fig. 1. Figs. 3 and 4 are detached views of the reciprocating tool-holder and the plugger carried thereby. Fig. 5 is an enlarged view of the upper end of the tool-holder and the cam which actuates it.

50 My invention consists of a plugger-tool holder A, actuated by cams B, which are mounted upon a shaft C, placed at an angle

to the axis of the tool-holder (preferably a right angle) and operating to drive the holder outwardly, its return being effected by a
55 spring D, the general arrangement being such that the line of reciprocation of the tool-holder may be at a fixed right angle to the general axial line of the instrument, as shown in
Figs. 1 and 2. As shown in the figures of the 60 drawings, the cams are secured to and driven directly by the handpiece-spindle E, which may be driven by a dental engine in the usual way or by any other suitable means. This
65 spindle is mounted in a bearing *e* in the base of the handpiece and also in a bearing *f* in a plug F, screwed into the outer end of a casing G. This casing is screwed onto the
end of the base and is locked in position by a check-nut or thimble H, this construction
70 admitting of the endwise adjustment of the bearings, as will be readily understood. The cam is preferably divided into two parts by a deep groove, across which they are connect-
75 ed by a neck *b* concentric with the spindle E. Each part of the cam is provided with two or more indentations *b'* (four are shown in the drawings) of any desired configura-
tion that will carry out my invention. The upper end of the tool-holder is slightly flat-
80 tened at its sides to fit between the cams and is slotted, as at *a*, to embrace by its forks the neck *b* of the spindle E, which serves as a lateral guide to or bearing for the holder. Immediately below the slot a cross-pin I is
85 secured in the holder, its projecting ends lying in contact with the cam-surfaces at each side of the holder. These ends are preferably cut away on their under sides and flattened to provide more space below the pin
90 and to form a suitable seat for the spring D, which lifts the holder. The casing is formed with a tubular side socket *g*, into which is screwed a plug J, which constitutes a second bearing and guide for the holder and also an
95 abutment for the lower end of the spring D.

The plugger tool-K and its holder may be made of a single piece, if desired; but I prefer to make them separately and provide the tool with a tapering top *k* to engage a simi-
100 larly-shaped socket in the holder, where it is held by frictional contact only. This enables me to use plugger-tools of varying shapes or to replace those that become broken or worn.

An aperture *k* in the tool may be engaged by a suitable piece of metal to release the tool from its seat. The numerous indentations on the cams are also an advantage in that they multiply the number of strokes of the plugger for each revolution of the driving-spindle, thus giving a very rapid succession of blows, which is desirable in dental work.

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

1. In a dental plugger, the combination with the casing, the rotary spindle therein, and the cam operated by the latter and having a concentric neck; of a tool-holder extending past the axis of the cam at right angles thereto and bifurcated to embrace said neck and form one bearing, a second bearing for said tool-holder, and means for communicating the movements of the cam-face to the tool-holder.

2. A dental plugger, the combination with the handpiece-casing, the rotary spindle therein, and the cam operated by the latter and divided by a groove into two parts having separate cam-faces and connected by a concentric neck; of a tool-holder extending past the axis of the cam at right angles thereto and flattened and bifurcated to embrace said neck and form one bearing, a second bearing for said tool-holder carried by the casing, and means for communicating the movements of the cam-faces to the tool-holder.

3. In a dental plugger the combination of the handpiece-casing and the rotatable spindle therein, the detachable front casing screwed onto the main portion of the hand-piece, the check-nut for locking it in position, the cam operatively connected to the spindle and having journal-bearing in the detachable

casing, the plugger-tool holder also having bearing in said detachable casing and disposed at a right angle to the cam-axis, abutments on the tool-holder to be engaged by the cam and a retractile spring to hold said abutments against the cam substantially as set forth.

4. In a dental plugger, the combination with the rotary spindle, and a cam fast on the latter and divided by a groove into two parts which are connected by a neck concentric with the axis of the spindle; of a casing containing the spindle, a tubular guide in the same at right angles to the spindle, a tool-holder whose body moves within said guide and whose inner end is slotted so as to embrace said neck, a projection on said body adapted to be struck by the face of the cam, and a spring opposed to the action of the cam.

5. In a dental plugger, the combination with the rotary spindle, and a cam fast on the latter and divided by a groove into two parts which are connected by a neck concentric with the axis of the spindle; of a casing containing the spindle, a tubular plug in the casing at an angle to the axis of the spindle, a tool-holder guided in the plug and whose inner end is flattened and slotted so as to embrace said neck, a pin through its body adapted to be struck at both ends by the faces of the cam, and an expansive coiled spring surrounding the body of the tool-holder between said pin and plug.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FREDERICK WM. KORB.

Witnesses:

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