

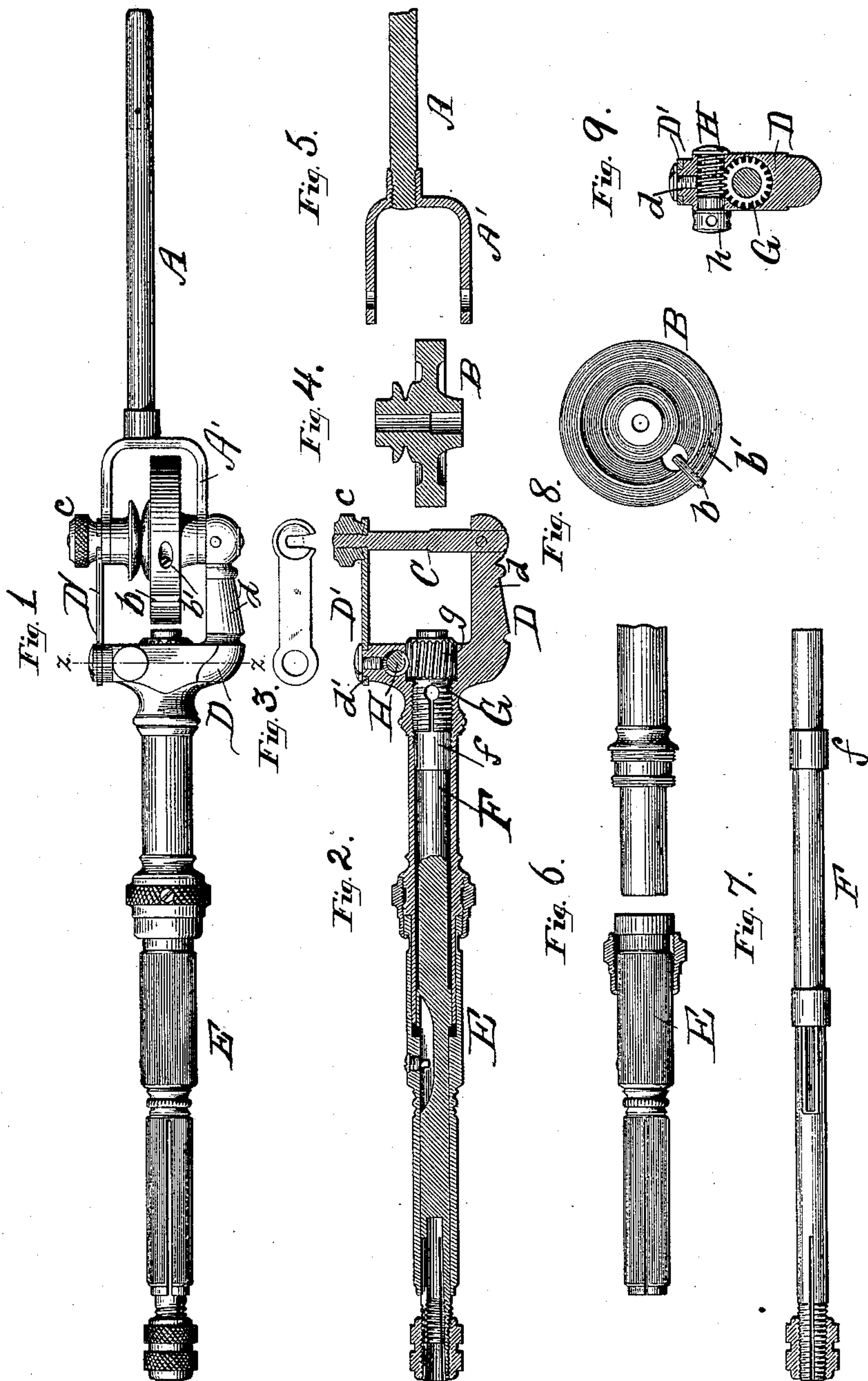
(No Model.)

W. G. A. BONWILL.

DENTAL PLUGGER.

No. 378,920.

Patented Mar. 6, 1888.



WITNESSES:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

WILLIAM G. A. BONWILL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR
TO THE S. S. WHITE DENTAL MANUFACTURING COMPANY, OF SAME
PLACE.

DENTAL PLUGGER.

SPECIFICATION forming part of Letters Patent No. 378,920, dated March 6, 1888.

Application filed October 11, 1887. Serial No. 252,016. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. A. BONWILL, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Dental Pluggers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates more particularly to revolving-hammer mechanical dental pluggers, by which the plugging-tool is hit a rapid series of blows to impact the gold in the teeth.

The object of my invention is to improve the fitting of the parts and connections of the revolving hammer to facilitate their construction and alteration to suit different types of engines; also, to improve the hammer projection of said revolving hammer, and also to improve the method of adjusting the blows delivered upon the tool.

The nature and objects of my invention will more fully appear from the following description, and the subject-matter claimed by me will be particularly pointed out at the close of this specification.

The accompanying drawings show my present improvements, and therein Figure 1 is a plan view of the instrument; Fig. 2, a longitudinal section therethrough; Fig. 3, a view of the pivoted latch-arm at one side of the revolving hammer; Fig. 4, a section through the revolving hammer; Fig. 5, a section of the spindle and yoke by which the tool may be connected to the dental engine; Fig. 6, a view of the sectional hand-piece casing, with the securing-nut between said sections in section; Fig. 7, a view of the endwise-movable or reciprocating tool-carrying shaft, spindle, or rod detached and with a securing-nut at the tool-clamping end in section. Fig. 8 is a side view of the revolving hammer, showing the improved method of fitting it with an adjustable and reversible hammer projection; and Fig. 9 is a section through the instrument on the line Z Z of Fig. 1, showing more particularly the devices which regulate the blows delivered.

The spindle A is fitted with a yoke, A', to receive between its members the revolving hammer B, fitted to turn or rotate on an axis-pin, C, on which said yoke may also vibrate or rock to enable the instrument to be handled freely in operation. This axis-pin C extends rigidly from one arm, d, of the rear casing section or frame, D, to which the handle portion E of the hand-piece casing is attached. The opposite end of said axis-pin is provided with a clamp-nut, c, and said end is supported by means of a latch-arm, D', swinging on a pivot, d', on said casing-frame and adapted to hook over the nut end of said axis-pin C and be clamped thereon by said nut c, so as to form the bearing for said axis-pin at that side of the instrument.

From the above it will be seen that the parts may be readily separated, so as to admit of the removal and replacement of the revolving hammer. Removing the clamp-nut c permits the latch-arm D' to be swung away from the axis-pin C and the yoke A' and hammer B to be moved off endwise from said axis-pin.

The next feature of my invention relates to the particular construction of the striking projection of the revolving hammer, which has heretofore been made in the shape of a block or ball, the surface of which is enlarged as wear takes place. To prevent this enlargement of the striking-surface, as well as to enable wear to be readily compensated by adjusting the striking projection, I make said hammer projection b in the form of a thin plate inserted radially in a slot in the revolving hammer B and clamped therein by a set-screw, b'. (See particularly Fig. 8.) This hammer projection may be adjusted more or less relatively to the periphery of the hammer-wheel, and when one side is worn another edge can be turned out to act as the striking part, and again be rigidly locked to the wheel by means of the clamp-screw b'.

Another feature of my invention has relation to adjusting the strength of the blows to be imparted to the plugging-tool, and this is determined by the greater or less projection of the end of the tool-carrying spindle F beyond the end of its hand-piece frame D, the hammer in

its revolution, by its striking projection, hitting a rapid series of blows upon the end of said spindle, which are communicated to the plugging-tool carried at the opposite end thereof. Said tool-carrying spindle is fitted with a shoulder, *f*, abutting against the front end of a male screw-sleeve, *G*, the threads of which fit the screw-threads upon the interior of the hand-piece frame *D*. It will be obvious that the extent to which this screw-threaded sleeve *G* is screwed forward in said frame *D* determines the extent of projection of the rear end of the spindle beyond said frame to receive the blows of the revolving hammer. In order to adjust this sleeve with accuracy and nicety, I fit its rear end with pinion-teeth *g* and fit said frame *D* with a worm or screw, *H*, which gears with said pinion, and by the rotation of which the sleeve is adjusted backward or forward. This adjusting worm or screw *H* has a suitable end, *h*, by which it may be turned in effecting the adjustment, and requires no locking device, as will be obvious. The construction of the forward part of the hand-piece casing and of the tool-carrying spindle is well known, and may be varied in a great many ways which form no part of my invention. The tool-clamp at the front end of said spindle is of a well-known construction to fit the instrument for a ready interchange of operating-tools.

I do not claim herein anything claimed in my application, No. 221,775, allowed November 10, 1887.

I claim as my invention—

1. The combination of the hand-piece frame and its fixed axis-pin, the detachable hammer and yoke, and the swinging arm and clamp-nut, substantially as described. 35
2. The revolving hammer fitted with a laterally-adjustable hammer projection. 40
3. The revolving hammer fitted with a reversible hammer projection and a locking device to fix said projection in its reversed position, substantially as described.
4. The combination of the hand-piece frame, the tool-carrying spindle fitted to reciprocate or move endwise therein, the screw-sleeve, and the adjusting screw or worm geared therewith, substantially as described, whereby to regulate the strength of the blows delivered upon the operating-tool. 45 50

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM G. A. BONWILL.

Witnesses:

ALEX. P. COLESBERRY,
F. R. SHATTUCK.