

(No Model.)

2 Sheets—Sheet 1.

W. G. A. BONWILL.

DENTAL PLUGGER.

No. 377,984.

Patented Feb. 14, 1888.

Fig. 1

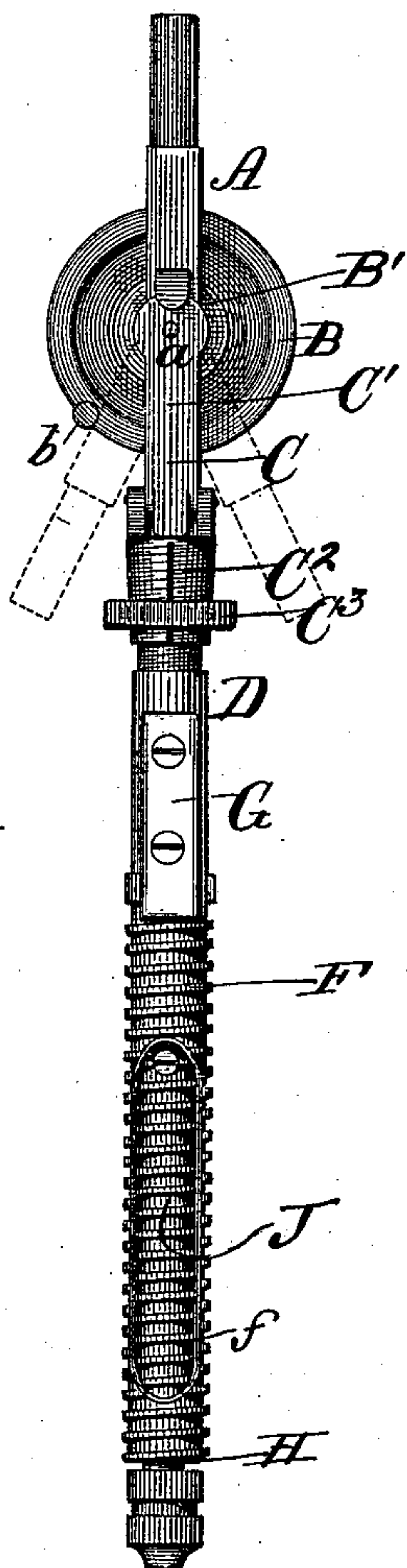
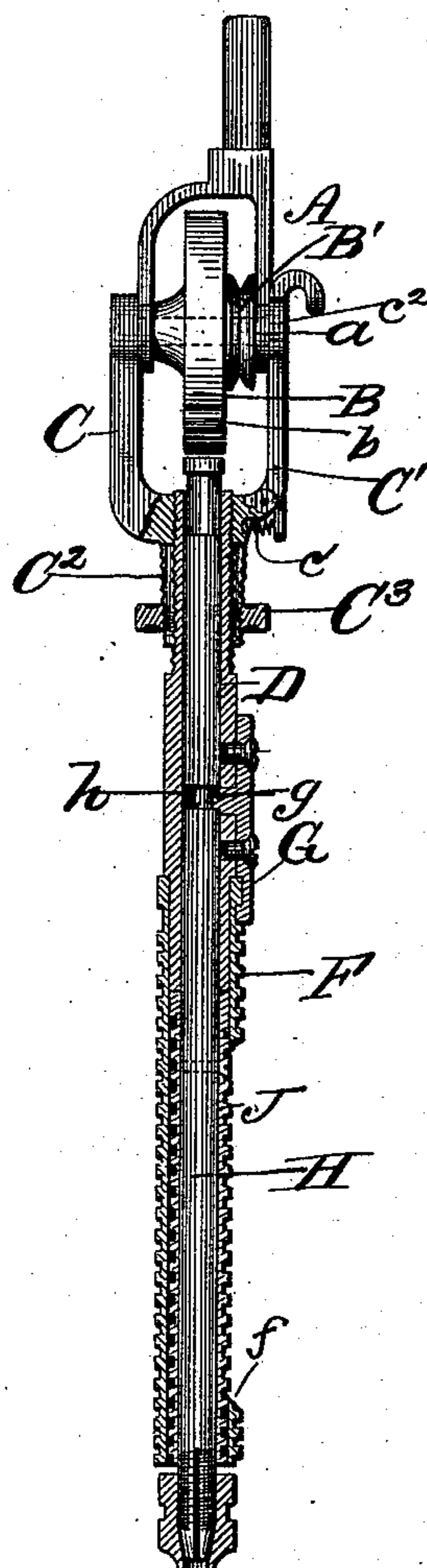


Fig. 2.



WITNESSES:

A. E. Paige
E. P. Starr

INVENTOR:

Wm G. A. Bonwill,
by his atty Wm P. Heydon.

(No Model.)

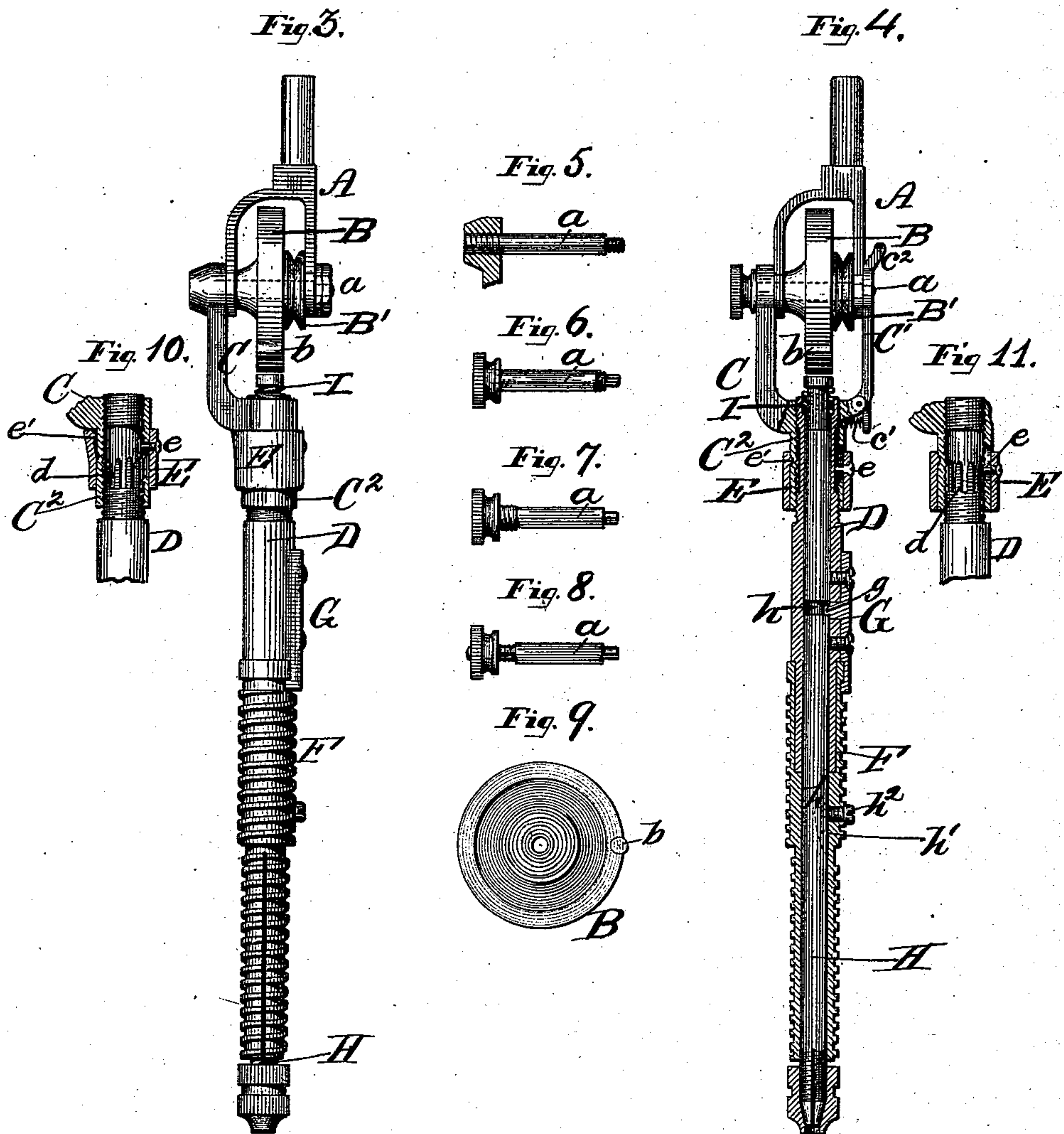
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by his Atty W. J. Peyton

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. 377,924, dated February 14, 1888.

Application filed December 16, 1886. Serial No. 221,775. (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 to certain improvements in dental pluggers, the object of which is to improve such devices.

The nature and objects of my invention will more particularly be set forth in the detailed description thereof which will follow, while the subject-matter claimed by me is distinctly recited in the summary at the close of this specification.

The accompanying drawings show my several improvements as embodied in a dental plugger having a revolving hammer, and in said drawings Figure 1 is a view in elevation of my improved plugger; Fig. 2, a similar view at right angles to Fig. 1, and with a portion of the instrument in longitudinal section. Fig. 3 is a view in elevation of a modified form of the instrument, and Fig. 4 a similar view with a part of the device in longitudinal section. Figs. 5, 6, 7, and 8 are views of the axle or axis pin of the revolving hammer, several different forms thereof being shown. Fig. 9 is a view of the revolving hammer detached, and Figs. 10 and 11 are sectional views of a modified form of the adjusting-connections shown in Figs. 3 and 4, by which the force of the blow delivered upon the tool-carrying spindle may be regulated.

A yoke or forked frame, A, straddles the revolving hammer B, which turns upon an axle or axis pin, *a*, and is driven by a belt-pulley, B', so as to revolve rapidly upon its axis or axle pin *a*. Straddling said revolving hammer from the opposite side is a yoke or forked frame, C, the ends of which are pin-jointed to the ends of the frame A by means of the axis-pin or axle *a*, above described, so that the yoke C is free to vibrate or rock rela-

tively to the frame or yoke A, this being desirable for freedom of movement, inasmuch as said yoke or frame C carries the hand-piece connections of the instrument.

In order to permit the driving band or belt to be readily fitted to the driving-pulley B', I either cut away one of the arms of the frame C, as shown in Fig. 3, or fit one of said arms so as to be removable—as, for instance, by making it in the form of a spring-latch, as shown in Figs. 1, 2, and 4—and either mode I include within the terms “open-sided yoke” or “pulley-frame.” The spring-latch C' may be jointed or fitted with the spring *c'* and adapted at its opposite end, *c*², to close upon the end of the axle *a*. The frame C has a tubular portion, C², internally screw-threaded to receive the inner or upper externally-threaded end of the section D of the hand-piece casing, whereby said hand-piece casing-section D may be screwed in or out of the frame C to any desired degree, and in order to lock it when adjusted in the said casing C the tubular portion C² of said frame C may have slotted walls and a tapered externally-threaded surface to receive a screw-nut, C³, whereby said nut may be screwed up upon said tapered surface, and the walls of the tubular portion C² of the frame C, will be contracted so as to bind upon the handle-section D and lock the two securely together; or, in place of that construction which is shown in Fig. 1 and 2, I may, and preferably do, employ that shown in Figs. 3, 4, 10, and 11, which consists of external splines or projections, *d*, on the handle-section D, with which a pin, *e*, of a sliding sleeve, E, may engage to lock the frame C and handle-section D against independent turning movements. The locking-pin *e* of the sliding sleeve E works in a longitudinal slot in the tubular frame portion C², so as to permit said pin to be carried out of engagement with the locking ribs or projections *d* of said casing-section D. When the sleeve E is moved upward, so as to disengage the pin *e* from the locking-ribs *d*, the hand-piece casing-section D may be screwed in or out relatively to the casing C, while as soon as the sleeve E is moved to engage said pin *e*

with the ribs *d*, which is the normal condition, the parts will be locked firmly together. The sleeve E may have slotted walls, so as to give its upper end a spring action, and be fitted
5 with a teat or projection, *e'*, to engage a pit or recess in the tubular portion C² of the casing C, so as to lock it from accidental movements.

The hand-piece casing consists, preferably, of the section D, before described, and a handle-section, F, said section F being fitted upon the front end of the section D and locked thereon with a capability of turning independently by means, for example, of a lug-nosed plate, G. (Shown in Figs. 1, 2, 3, and
15 4.) This hand-piece casing is tubular and the tool-carrying spindle H is fitted to reciprocate or move endwise therein under the impacts of the blows of the revolving hammer B, a projection, *b*, of which at every revolution of
20 said hammer strikes a blow upon the end of the said tool-carrying spindle to drive it forward. A spring, I, acts to return the end of the tool-carrying spindle H to a position to be struck by the revolving hammer after each
25 blow thereof, in a well-known way, or may be returned by hand, as in Fig. 2.

The amount of endwise movement allowed the tool-carrying spindle in the hand-piece casing may be determined by means of a lug
30 or pin, *g*, of the plate G, which passes through an opening in the casing-section D and fits in an annular groove, *h*, in said tool-carrying spindle.

In order to permit the tool-carrying spindle H to be turned by the fingers in operating, so as to present the tool-point in different relations to the substance operated upon, and without interfering with its reciprocation, I may form a longitudinal slot, *h'*, (shown by
40 dotted lines in Fig. 4,) in the tool-carrying spindle and engage therewith the point of a set-screw, *h''*, passing through the casing-section F, which constitutes, more particularly, the handle-section of the instrument.

I do not claim herein this construction, however, as it forms part of the subject-matter of another application, and in lieu of that organization I preferably employ the organization of the casing and tool-carrying spindle shown in
50 Figs. 1 and 2, in which the handle-section F may turn upon the section D in conforming to the movements of the hand in operating the instrument, while fitted to contain a sleeve, J, fastened to the tool-carrying spindle H, this
55 sleeve J constituting virtually a part of the tool-carrying spindle H, and is fitted for operation by the thumb of the operator through a slot, *f'*, in the casing-section F, whereby the

tool-carrying spindle may be readily turned independently of the hand-piece casing and
60 also be moved downward or endwise by the operator, so as to carry said spindle forward and its upper hammer end out of the way of the hammer, in order to interrupt the blows of the instrument. This interruption is some-
65 times necessary—as when picking up gold-foil, for example—in filling cavities of natural teeth, at which time it is desirable in many cases not to stop the motive power, and at the same time have the tool-carrying spindle vir-
70 tually a stationary one, so as to be able readily to take up the gold, for example, or be used in the way of a hand-plugger by direct pressure, instead of by striking blows, as is the case when the spindle is struck by the hammer.
75 When the pressure of the thumb carries the spindle forward out of contact with the revolving hammer and is then released, the spring I (when used) immediately automatically places the instrument in its normal condition, with
80 the butt-end of the tool-carrying spindle in position to be struck by said hammer.

The front end of the tool-carrying spindle H may be socketed or have split or spring jaws and a compression-nut by which to lock the
85 operating-tools in or to the tool-carrying spindle. This tool-locking device is a well-known construction and forms no part of my invention.

I claim as my invention—

1. The combination, substantially as herein-
90 before set forth, of a forked frame, an axis-pin extending across said frame from one of its members to the other, a belt-pulley of said axis-pin fitted between said members of said frame,
95 and a joint and fastening for one member of said frame, whereby it may be moved to admit of the insertion of the belt and then be secured to inclose the pulley, as described.

2. The combination of the sectional casing
100 adjustable by screw-threads, the inclosed spindle and its striking hammer, and the locking device to maintain the adjustment of said sections, consisting of the locking-ribs of one of
105 said sections and the sliding sleeve and locking-pin of the other section, which is longitudinally slotted to permit the endwise movement of said sleeve and pin, substantially as described.

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

WM. G. A. BONWILL.

Witnesses:

ELI L. STARR,
JAS. F. LYND.