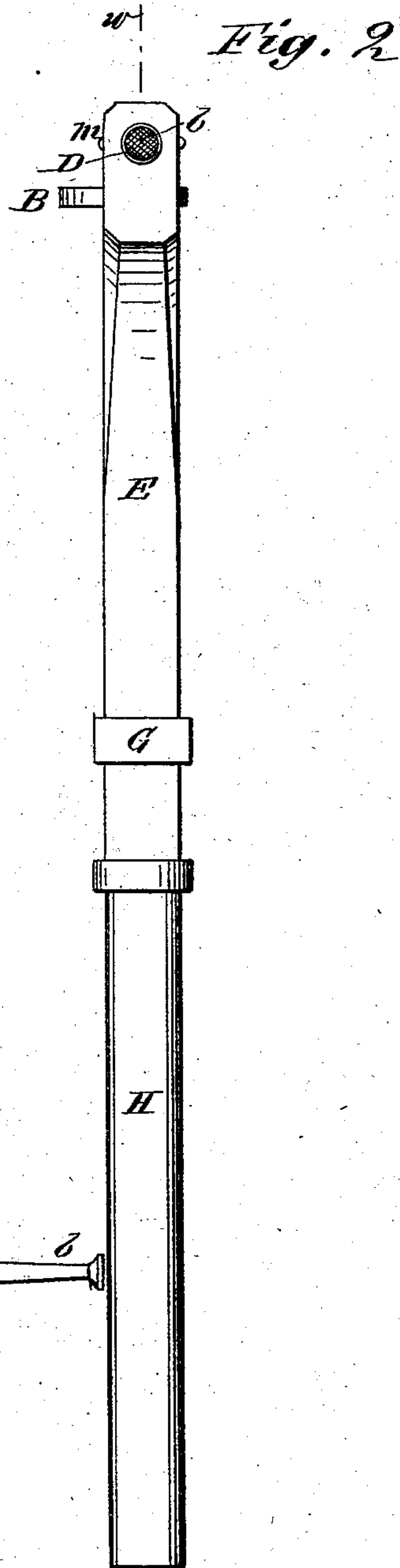
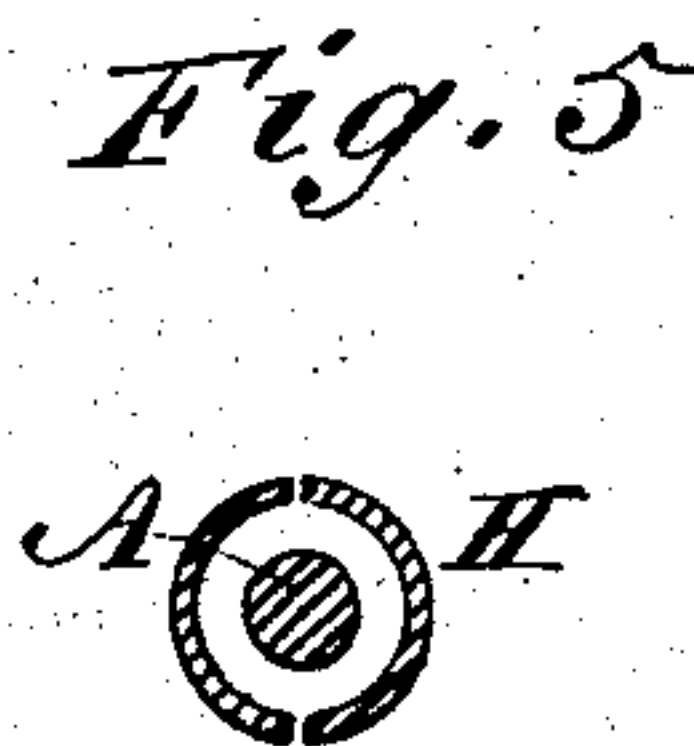
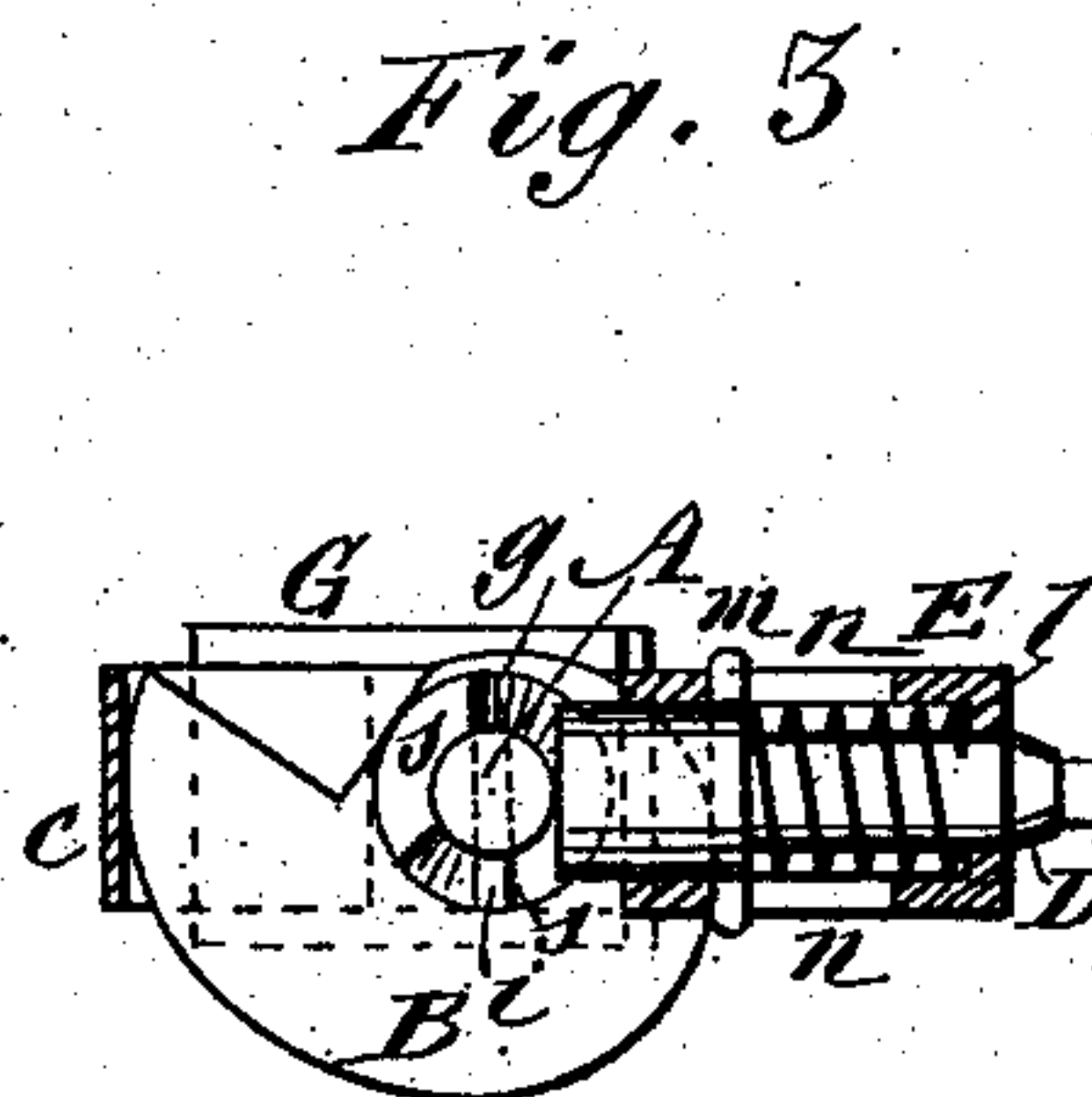
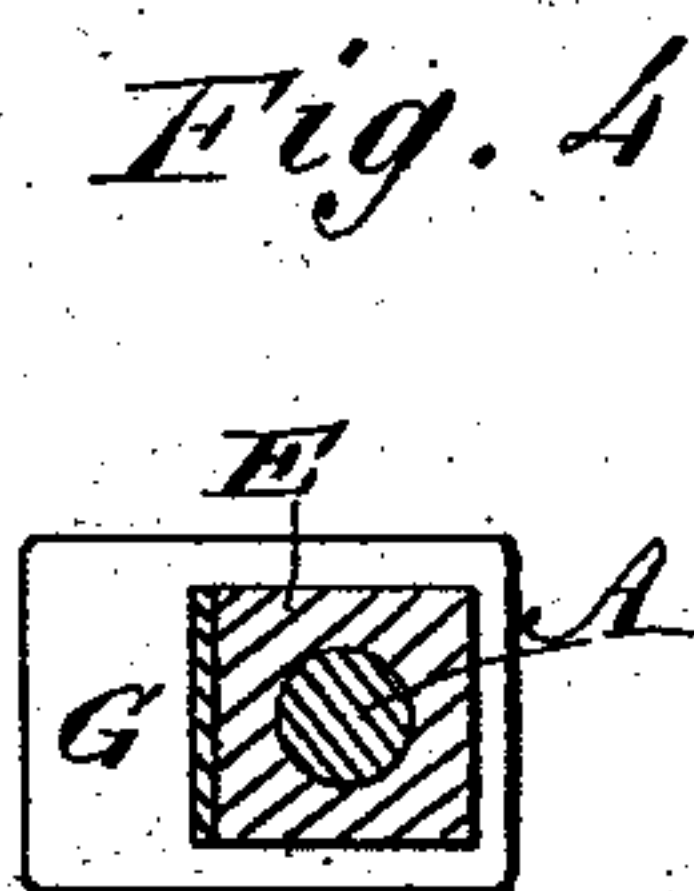
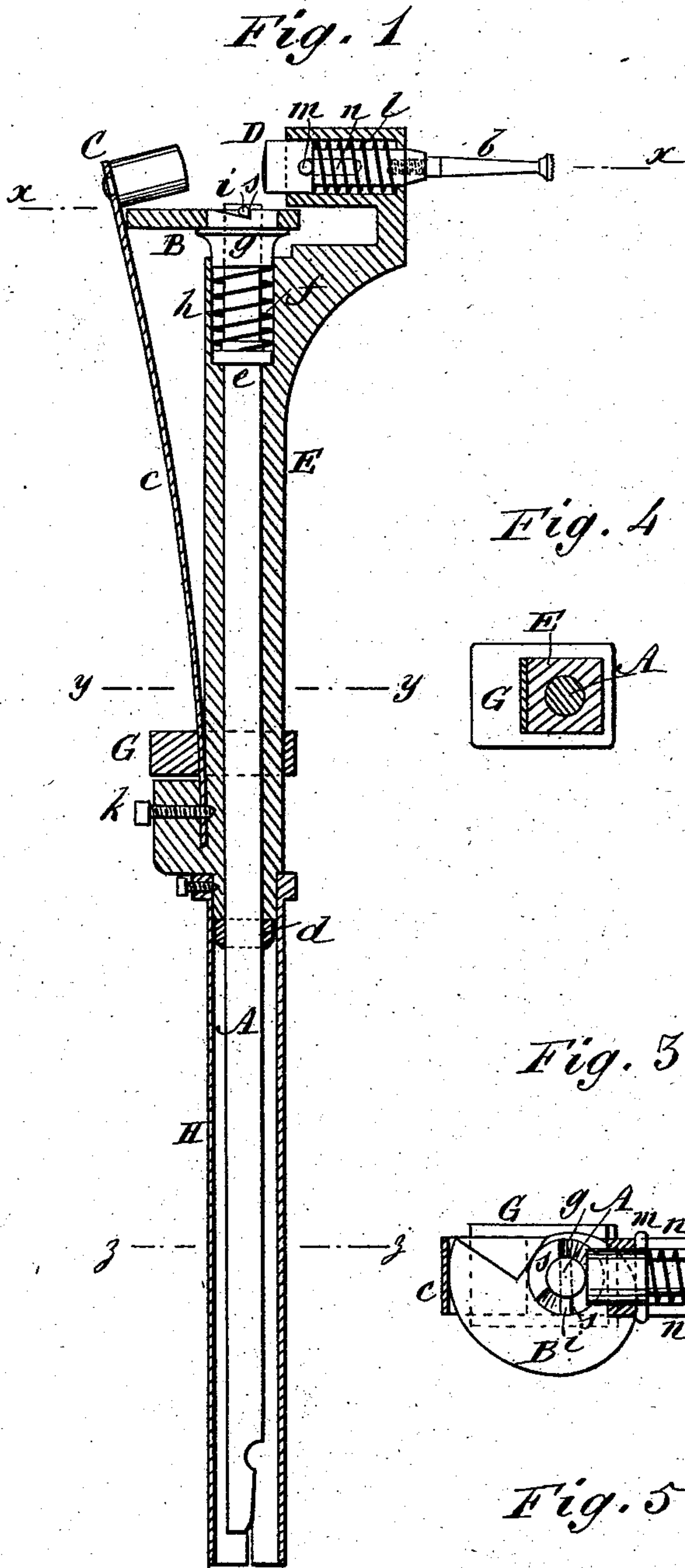


(No Model.)

B. F. ESHELMAN
DENTAL PLUGGER.

No. 290,014.

Patented Dec. 11, 1883.



WITNESSES:

C. Neveu
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UNITED STATES PATENT OFFICE.

BENJAMIN F. ESHELMAN, OF HARLAN, IOWA.

DENTAL PLUGGER.

SPECIFICATION forming part of Letters Patent No. 290,014, dated December 11, 1883.

Application filed June 27, 1883. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. ESHELMAN, of Harlan, in the county of Shelby and State of Iowa, have invented certain new and useful Improvements in Dental Pluggers, of which the following is a full, clear, and exact description.

This invention has for its object the production of an improved right-angle plugging attachment for dental engines, and which may also be used as a hand-plugger; and it consists in certain novel constructions and combinations of parts, including an adjustable spring-hammer, whereby great simplicity is attained, and, as a dental-engine attachment, not only is a reverse motion prevented from being transmitted to the plunger or bit-holder and spring of the device, thereby doing away with injury to the working parts of the plugger, but the hammer is susceptible of a widely-varied range of blows—a spring or live blow, as distinguished from a dead blow or blow without recoil, is given by it, and other advantages are secured, substantially as hereinafter described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a longitudinal section, upon an enlarged scale, on the line *ww* in Fig. 2 of a dental-plugger attachment embodying my invention. Fig. 2 is a longitudinal front view of the same. Fig. 3 is a sectional view upon the line *xx* in Fig. 1; Fig. 4, a transverse section on the line *yy* in Fig. 1, and Fig. 5 a further transverse section on the line *zz* in Fig. 1.

The device includes a shaft, A, constructed at its inner end to connect with the engine, and provided on its outer end with an engaging and disengaging snail or other suitably-leafed cam, B, for operating a spring-hammer, C, that, when released from the cam, is thrown by its spring-shank *c* and caused to strike the plunger or bit-holder D. This delivers the blow on the filling through the bit *b*, carried by the plunger. The shaft A, which works longitudinally through and has its bearing in the body E of the instrument, is restrained from movement longitudinally by a friction-collar, *d*, and fast collar *e*, the latter rotating

in an enlarged recess, *f*, in the head or outer end portion of the body E. Within this recess *f*, between the fast collar *e* and a loose collar-piece, *g*, on the outer end of the shaft, is a spiral spring, *h*, which serves to press the collar *g* outward against a sidestud or radial pin, *i*, on the outer end of the shaft. The cam B is fast on the loose collar *g*, and the pin *i* works over the outer end or face of the collar *g*, which end has one or more step projections, *s s*, on it, made with inclined backs, so that when the shaft A runs in a forward direction the pin *i*, acting against the face end of either step *s*, will rotate the cam B, and so operate the spring-hammer C; but when said shaft A is rotated in a reverse direction the pin *i* will ride over the inclined backs of the steps *s*, depressing the cam B against the tension of the spring *h*, and fail to exert any rotating action on the cam, that thus is restrained from any reverse movement, thereby doing away with injury to the working parts of the plunger. The spring-shank *c* of the hammer, which should be made of considerable length, and preferably of a flat form, is fixedly secured at its inner end to or in the body E by pin, rivet, or screw *k*. Outside of said spring and of the body E is a sliding clamp or band, G, which, accordingly as it is moved up or down, acts as a governor or check to regulate the force of the blow by varying the operating length of the spring or spring-shank *c*, and thereby controlling its acting strength. By this means a widely-varied range of blow, from a very heavy to a very light one, may be obtained.

The bit-holder D, in which the bit *b* may be secured by screwing it into the forward end of the holder, is fitted to slide within or through the head of the instrument, and is controlled in its in and out movements by a coiled spring, *l*, which is compressed when the bit-holder is struck by the hammer, and a pin, *m*, in the bit-holder, arranged to pass through slots *n* in the head of the body E. The spring *l* gives a recoil action to the bit-holder after each blow of the hammer, and in a measure assists the spring-recoil action of the hammer.

H is an outer sleeve attached, by set-screw or otherwise, to the inner end of the body E, and serving to inclose the exposed portion of the shaft A; also, if desired, to form a handle

when using the instrument as a temporary hand-plugger. When using the device as a detached hand-plugger, the shaft A is detached from its connection with the engine and turned
5 so that the heel or innermost acting portion of the cam B is next to the spring C of the hammer, after which the clamp or band G is pushed forward or outward, which shortens the acting length of the spring-shank and gives it
10 great strength.

The plugger, constructed as described, gives a live or spring blow, and the spring is of such construction and length as to secure a perfect recoil. I prefer to have the hammer only make
15 one stroke for each revolution of the shaft A, so that the instrument will run easier as an attachment to a dental engine, and the distance traveled by the hammer-spring in its back-stroke is increased, thereby causing the device to work easier and to take less force to
20 operate it. The bit *b* should be formed with a shoulder, so that when the bit is screwed into its holder it will be held by friction from turning.

The instrument is both simple and durable, and its working parts interchangeable and well protected. It has but little jar and friction, can be made to reach parts of the mouth which are inaccessible with the straight-action
25 plugger, and can be operated on any engine by simply substituting a differently pointed or constructed shaft.
30

I do not abandon or dedicate to the public any patentable feature set forth herein and
35 not hereinafter claimed, but reserve the right

to claim the same either in a reissue of any patent that may be granted upon this application or in other applications for Letters Patent that I may make.

I am aware that a mallet has been attached 40 to a spring and operated by a cam, and I am also aware that a tool-stock has been provided with a retracting-spring; and I therefore do not claim such inventions.

Having thus described my invention, what I 45 claim as new, and desire to secure by Letters Patent, is—

1. In a dental plugger, the combination, with the body E, having a right-angled extension or head, of the spring-hammer C, the cam B, 50 and the spring-pressed tool-stock D, working in the angular projection of the body, substantially as herein shown and described.

2. In a dental plugger, the combination, with the body of the plugger and a sliding tool- 55 stock, of a spring secured to the body and carrying a hammer at its free end, and a sliding band surrounding the body and spring, substantially as herein shown and described.

3. The loose cam B, with its attached collar *g*, having one or more inclined steps, *s*, in combination with the rotating shaft A and its attached pin or stud *i*, the spring *h*, the body E, the hammer C, and the sliding bit-holder D, substantially as herein described. 60

BENJAMIN F. ESHELMAN.

Witnesses:

E. Y. GREENLEAF,
WARREN GAMMON.