

A. McG. DENHAM.
Dental-Plugger.

No. 219,075.

Patented Sept. 2, 1879.

Fig. 1

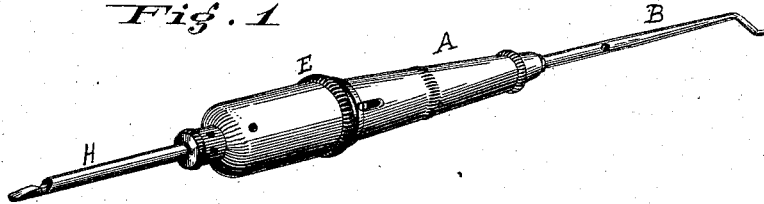


Fig. 2

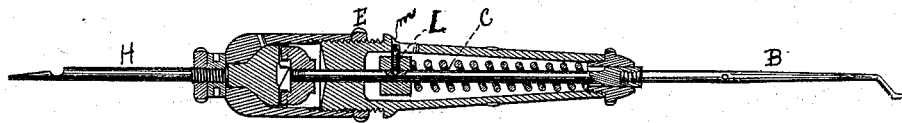


Fig. 3

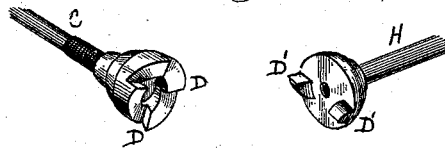
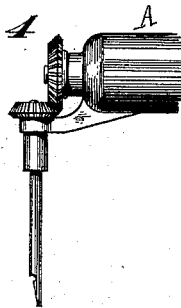


Fig. 4



Witnesses

Allen Helden
Robert A. Smith

Inventor

Alexander McG. Denham
per H. J. Feuton, Atty

UNITED STATES PATENT OFFICE.

ALEXANDER MCG. DENHAM, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN DENTAL PLUGGERS.

Specification forming part of Letters Patent No. **219,075**, dated September 2, 1879; application filed October 19, 1878.

To all whom it may concern:

Be it known that I, ALEXANDER MCGOWAN DENHAM, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improved Plugger for Dental Purposes, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

The nature of my invention consists in constructing a plugging-instrument for dental purposes to be held in the hand, but the point of which shall be movable backward and forward, and shall receive its motion from a plunger inclosed in a coiled spring within the casing of the instrument, the plunger being provided with one or more cam-shaped lugs on its lower end, and lifted or driven forward by the cam-action of corresponding lugs on the face of a rotating stem or spindle placed and operating in a line with the plunger, and driven by the flexible shaft of a dental engine.

The invention also consists in regulating the force of the blow by means of a screw-ring on the casing of the instrument, which operates by depressing that portion of the casing which contains the stem or spindle, and thus increasing or decreasing the length of the gripe or bite of the two sets of cam lugs or projections on the spindle and plunger. These several devices and their operation are hereinafter more fully described, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved plugger; Fig. 2, a transverse vertical section, in which the instrument is shown more in detail; Figs. 3 and 4, perspective views of several of the parts.

It has not been deemed necessary to show any of the driving mechanism, which consists of any ordinary dental engine with its flexible shaft attached to any ordinary hand-piece, to which the end of the stem or spindle H is fitted when in operation.

The point B of the plugger is provided at the end with a screw-thread, by which it is screwed to the end of the plunger C, and it is so made removable to enable the operator to use points of different sizes and different serrations at the end of the point, suitable for the kind and size of the cavity to be plugged.

The plunger C is operated within the body A of the plugger by means of the arrangement of projections or lugs D, (see Fig. 3,) which fit corresponding lugs or projections D' on the stem or spindle H, (see Fig. 3,) by which a cam-motion is obtained, and the point driven backward and forward as the projections or lugs D' on the stem or spindle come in contact with, lift, and pass the projections or lugs D on the plunger.

The plunger is inclosed within a coiled spring to cause it to rebound to its normal position after it has been pushed or driven forward by the cam-motion of the lugs D and D'.

The plunger is prevented from rotating within the casing of the instrument by means of a set-screw, L, the point of which is screwed into the plunger, and which moves up and down in a groove or slot, M, in the casing of the instrument.

The instrument is also provided with a screw-ring, E, which is screwed backward or forward on the body A of the plugger, against the lower portion thereof, which incloses the upper portion of the stem or spindle, and thus enables the operator to regulate at his pleasure the force of the blow to be given by the point, which effect is produced by bringing the ends of the two sets of lugs D and D' more or less closer together, as it may be desirable to make the force of the blow stronger or weaker.

I am aware that a screw-ring or its equivalent has been heretofore used to shorten the casing of the instrument, and so regulate, in a measure, the force of the blow, and I do not lay claim to the same, this portion of my invention consisting only of the combination and arrangement of these parts with a rotating stem or spindle provided with cam-lugs operating on the corresponding lugs of a plunger placed in a line with the rotating stem or spindle.

In Fig. 4 is shown a small pair of cog-wheels, which can be attached to the plugger in place of the end of the stem or spindle H, so that motion may be obtained from the side of the instrument when it may be desirable to use it in that manner.

In many of the automatic plugging-instruments heretofore constructed the blow is a negative one, given solely by the recoil of the

coiled spring, the entire motion imparted by the flexible shaft being used exclusively in depressing the spring, so that not only is a comparatively weak blow given, but the operation is slow, as only one blow can be obtained for each rotation of the shaft, whereas in my instrument its chief value consists in its ability to give direct blows, which are positive in their nature, the plunger being lifted or driven forward, directly, by the action of the cam-lugs on it and the rotating spindle, the coiled spring serving merely to cause the plunger to rebound to its normal position after the corresponding cam-lugs have passed each other. This mode of construction also enables me to obtain more rapid action of the plunger, for instead of one blow only for each revolution of the shaft I am enabled to obtain four, as shown in the drawings, or, indeed, as many blows for each revolution as there are sets of lugs or projections on the plunger and rotating spindle.

The operation is as follows: The end of the stem or spindle H is inserted in the hand-piece attached to the flexible shaft of a dental engine. The motion thus imparted causes the lugs or projections D' of the stem or spindle to strike against, lift, and pass the lugs or projections D of the plunger, which rebounds after each forward push by means of the coiled spring. The point B of the instrument is thus caused to give rapid, regular, and direct blows more or less powerful, as may be desired.

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

1. A plugging-instrument for dental purposes in which the point is operated by means of a plunger inclosed in a coiled spring within the body of the instrument, and provided with lugs or projections to fit corresponding lugs on a rotating stem or spindle placed and operating in a line with the plunger, the said plunger being reciprocated forward by the cam motion of the lugs or projections, and backward by the said spring, and being prevented from rotating within the casing of the instrument by means of a set-screw or its equivalent working in a groove or slot in the casing, the whole being constructed and operating substantially as described.

2. The adjusting screw - ring E, bearing against the lower portion of the casing A, which contains or holds the rotating spindle, in combination with the said rotating spindle provided with cam-lugs, as described, and operating to regulate the length of the gripe or bite of said cam-lugs upon the corresponding lugs of a plunger placed in a line therewith, whereby the force of the blow to be given by the point may be graduated.

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

ALEXANDER MCG. DENHAM.

Witnesses:

HORACE FRITZ,
H. T. FENTON.