K. L. MILLS.

DENTAL-PLUGGER.

No. 189,249. Patented April 3, 1877.

FIG. 1.

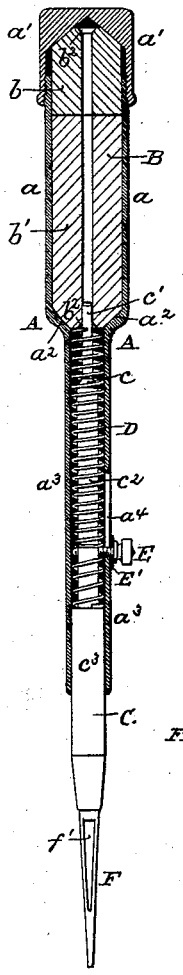


FIG. 2.

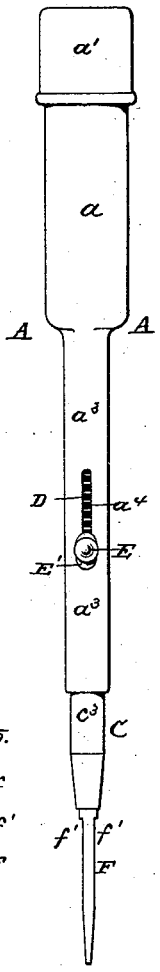


FIG. 3.

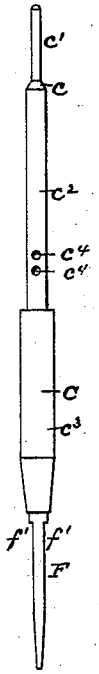


FIG. 4.

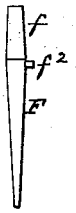
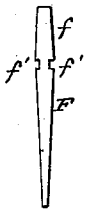


FIG. 5.



ATTEST:

Robert Burns

Lovejoy & Burdett.

INVENTOR:

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UNITED STATES PATENT OFFICE.

KELSEY L. MILLS, OF KANSAS CITY, MISSOURI.

IMPROVEMENT IN DENTAL PLUGGERS.

Specification forming part of Letters Patent No. **189,249**, dated April 3, 1877; application filed February 22, 1877.

To all whom it may concern:

Be it known that I, KELSEY L. MILLS, of Kansas City, in the county of Jackson and State of Missouri, have invented a certain Improved Dental Plugger, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

My invention applies to that class of pluggers whose handle constitutes the mallet, and whose point-holder is consequently made movable in the handle.

The first part of my invention consists in the construction of the mallet proper. This is made in two or more reversible pieces, consisting of different substances. These pieces have symmetrical ends, so that either piece may be put in position to constitute the face of the mallet, so as to change the character of the blow.

The second part of my invention relates to the means for adjusting the tension of the spiral spring by which the point-holder is forced outward, and regulating the movement of the point-holder. This spring at the inner end has bearing against the end of the mallet, and its outer bearing is against a screw which is movable in the point-holder, the latter being provided with a number of screw-holes, so that by changing the screw from hole to hole the play of said piece in the handle is regulated, the screw, by impinging against the outer end of the slot in which it works, limiting the outward movement of the point-holder. By changing the spring upon the screw so that the latter has bearing between coils nearer and farther from the end, the tension of the spring is adjusted.

In the drawings, Figure 1 is an axial section. Fig. 2 is a side view. Fig. 3 is a side elevation of point-holder detached. Fig. 4 is a side view of point with side pin to aid in extraction and engagement in point-rack. Fig. 5 is a side view of a point somewhat modified from main form.

The handle or case A incloses the mallet B and point-holder C. The mallet is made to fit tightly in the enlarged part *a* of the handle, and is held immovably therein by a screw-cap, a^1. The mallet consists of two or more block parts, b b^1, composed of different substances, such as steel and lead, or an alloy softer than steel, so as to give a dead blow upon the point of the holder. The softer blocks may be composed of hard rubber, wood, ivory, horn, or any other suitable substance. The blocks b b^1 are all held in close contact, so as to strike the point-holder as a single block.

One end of each block has a general frusto-conical form, so as to rest closely against the lower end or shoulder a^2 in the sleeve, and to give an end bearing to the spring D. b^2 is a conical hole or countersink in the end of the block which forms the face of the mallet that impinges against a conical shoulder, *c*, of the point-holder. The point-holder has a part, c^1, of reduced diameter, which works endwise in an axial hole in the mallet B, and forms the inner bearing of the point-holder C. The outer bearing c^3 of the point-holder is in the smaller part a^3 of the sleeve or handle A. Thus it will be seen that the bearings of the point-holder are far asunder, and consequently its movements are very even and certain.

The point-holder has a part, c^2, of diameter between the parts c^1 and that c^3, and this is surrounded by a spiral spring, D, whose inner end has bearing against the end of the mallet B. The outer bearing of this spring is against a screw, E, which engages in one of a series of screw-holes, c^4, in the stem of the point-holder, and passes through a longitudinal slot, a^4, of the handle or sleeve A, and between the coils of the spring D. The tension of the spring is regulated by the insertion of the screw E between the coils at a point more or less distant from the end of the spring. This screw E passes through the stem of the point-holder, and the spring D has bearing against the screw at the point as well as at the head. This screw prevents the turning of the holder in the handle.

The inward movement of the point-holder in the handle is limited by the impingement of its conical shoulder *c* against the mallet, and the outward movement of the point-holder is limited by the impingement of the screw E against the outer end of the slot a^4. Thus it will be seen that the stroke of the point-holder can be increased or diminished by changing the screw E to another of the holes c^4, at a greater or less distance from the point F. The

point-holder has, in the end c^3, a tapering socket to fit the tapering end or shank f of the point F, and as the blows of the mallet are given upon the holder, the point is made tighter in the socket, so that no special device is required to lock the point in its socket.

By use the point is liable to become quite tight, and the easiest way to remove it from the socket is to give it a slight twist therein. To enable this to be done I make the stem flat at f^1, as shown in Figs. 1, 2, and 5, or provide it with a side pin, f^2, as shown in Fig. 4, so that by engaging said flat part in a notch of the point-rack, or the pin in a hole in the rack, the point may be held while a twist is imparted to the handle to loosen the point in the socket.

The screw E passes through a washer, E′, curved to fit the outside of the handle, so that the screw E does not come in contact with the handle.

In using the instrument the point is held in constant contact with the filling by the spring, and the handle is moved outward and inward, so as to cause percussion of the mallet against the point-holder.

When it is desired to use the plugger with an ordinary mallet, the shoulder c is brought in contact with the mallet, and screw E is turned in so as to press the washer E′ tightly against the handle, so as to hold the parts in this position.

I claim as my invention—

1. The mallet B, formed of two or more separate reversible blocks having symmetrical ends, fitting tightly together, and fixed in cylindrical case or handle A, substantially as set forth.

2. In combination with the point-holder C and spring D, the screw E, with series of screw-holes c^4, to regulate the play of the holder and tension of the spring D, substantially as set forth.

KELSEY L. MILLS.

Witnesses:

SAML. KNIGHT,

ROBERT BURNS.