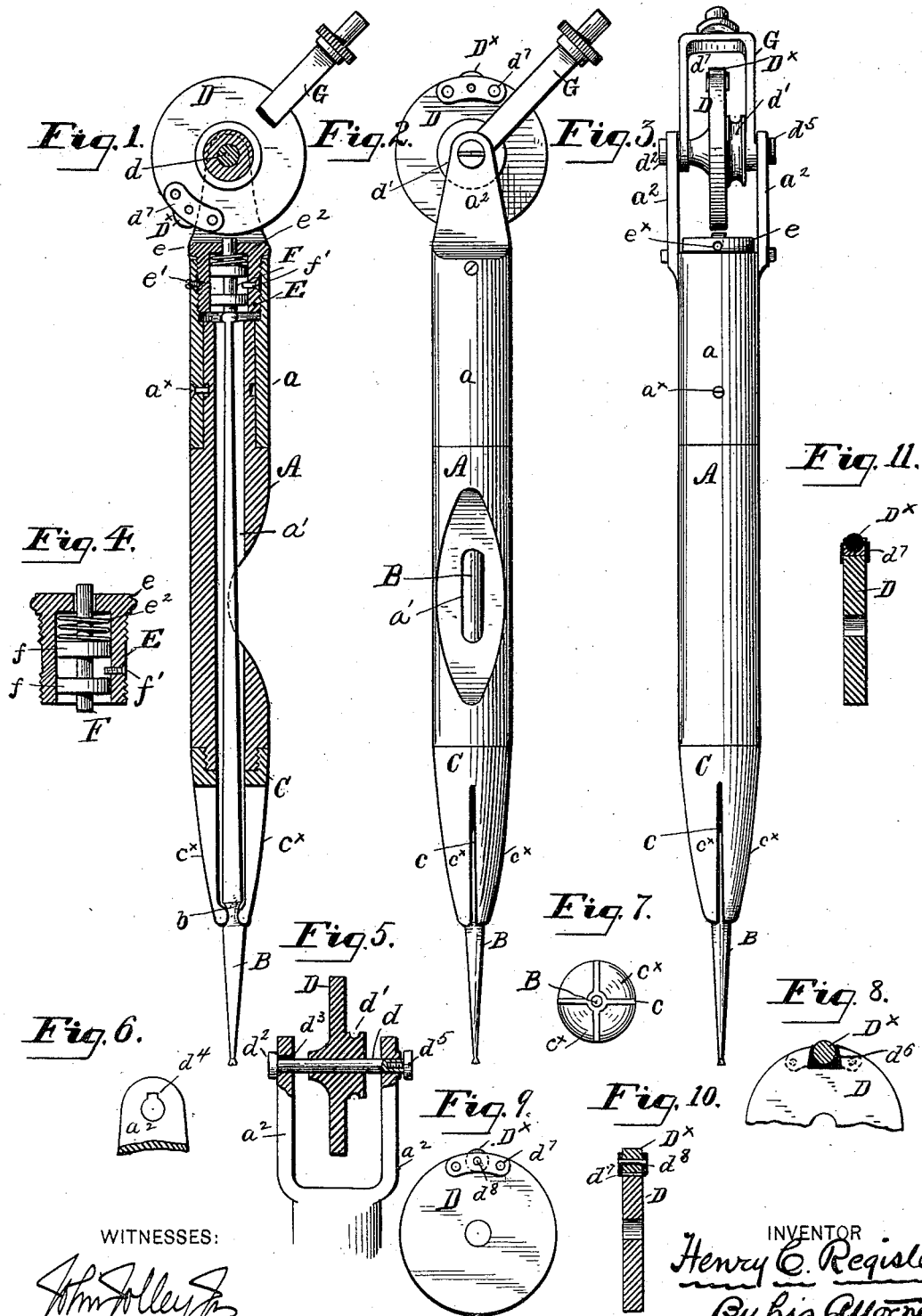


(No Model.)

H. C. REGISTER.  
DENTAL PLUGGER.

No. 347,828.

Patented Aug. 24, 1886.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

HENRY C. REGISTER, OF PHILADELPHIA, PENNSYLVANIA.

## DENTAL PLUGGER.

SPECIFICATION forming part of Letters Patent No. 347,828, dated August 24, 1886.

Application filed July 10, 1886. Serial No. 207,658. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY C. REGISTER, a citizen of the United States, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented an Improvement in Dental Mallets, of which the following is a specification.

The object of my invention is the construction of a simple, accurate, and easily-operated mallet which shall be reliable in its action and not liable to get out of order.

To these ends my invention comprehends a mallet, a convenient embodiment of which is represented in the accompanying drawings and described in this specification, the particular subject-matter claimed as novel being hereinafter definitely specified.

In the drawings, Figure 1 is a central vertical longitudinal sectional elevation through a mallet embodying my invention. Fig. 2 is a side elevation, and Fig. 3 an edge elevation, of the same. Fig. 4 is a central sectional detail through the thimble removed from the casing, showing the plunger within it. Fig. 5 is a central sectional and partially elevational detail through the impact-wheel and the standards of the casing. Fig. 6 is a fragmentary side detail of one of the standards, showing the notch in it for the key on the axle. Fig. 7 is a bottom view of the bit retaining ferrule. Fig. 8 is a fragmentary side view of the impact-wheel of Figs. 1 and 2, one of the clamp-plates being removed and the impact-roller being shown in section. Fig. 9 is a side view of the impact-wheel, showing the application of the impact-roller by the aid of an axle; and Fig. 10 is a central vertical section through the wheel of Fig. 9 in the plane of the dotted line  $xx$  of said figure. Fig. 11 is a view similar to Fig. 9, showing a sphere or ball in the wheel instead of a cylindrical roller.

Similar letters of reference indicate corresponding parts.

In the drawings, A represents the casing, which is preferably made in two parts, swiveled together, the lower member being designated by the letter A and the upper by the letter  $a$ , and the swiveled connection being conveniently effected by the screw or pin  $a^x$ . The casing, as is usual, is provided with an axial aperture,  $a'$ , for the reception of the bit or tool B, and at its lower extremity is provided

with a conical cap or ferrule, C, which is provided with a series of slots,  $c$ , so as to be in effect provided with a series of spring-jaws,  $c^x$ , adapted to engage a circumferential groove,  $b$ , in the bit, and so retain the bit within the casing. At its upper extremity the casing, or the upper member thereof, branches to form, or is otherwise provided with, two standards,  $a^2$ , one of which, as shown in Fig. 3, can be made removable, within and between which is housed the axle  $d$  of the impact-wheel D. The upper extremity of the casing is preferably enlarged internally and threaded to receive a cylindric form thimble, E, conveniently provided with a head,  $e$ , and externally threaded, so as to be adapted to be seated within the threaded seat or opening in the casing. The head is conveniently provided with a series of radial holes,  $e^x$ , into which a tool can be introduced, and by which the said thimble can be rotated so as to adjust its vertical set with respect to the casing; or, if desired, it can, as shown in Fig. 4, be provided with a series of projecting knobs for the same purpose, but adapted to be operated by the thumb and finger. The thimble when adjusted to a predetermined set is adapted to be fixed by a locking-screw,  $e'$ , passing through the walls of the casing, and adapted to bear against the exterior of the thimble. The thimble contains a plunger, F, conveniently formed or provided with two fixed collars or flanges,  $f$ , between which a screw-stud,  $f'$ , projects within the thimble, so as to prevent the plunger from being displaced. Above the upper collar on the plunger a spiral or other spring,  $e^2$ , adapted to retain the plunger normally retracted within the thimble, is placed. This spring may, if desired, be omitted. When employed, it retains the plunger clear of the impact roller or sphere, except when in the employment of the mallet the bit pressed against the filling occasions its compression. The impact-wheel is provided with the usual pulley,  $d'$ , around which the cord by which the pulley is actuated passes, and the forked head of the outer member of the engine straddles the impact-wheel and is housed upon its axle. The axle is conveniently provided with a head,  $d^2$ , which has a key,  $d^3$ , Fig. 5, adapted to a notch,  $d^4$ , Fig. 6, in one of the standards, so as to prevent the axle from rotating, while the axle

itself is, as shown in Fig. 5, preferably made slightly longer than the extreme outside breadth of the standards, so that when a false-head screw,  $d^b$ , is screwed into the outer extremity of the axle it abuts against the axle itself, and prevents the binding in of the standards against the forked head, and the consequent binding of the impact-wheel against a free rotation. The impact-wheel is a solid disk of metal containing at a point in its periphery a transverse boxing,  $d^c$ , Figs. 8 and 10, to receive and retain an impact-roller,  $D^x$ , which fits snugly within it, is cylindric, ellipsoidal, or cask-shaped, and is contained against lateral displacement by clamp-plates  $d^d$ , suitably secured to the sides of the impact-wheel, as shown in Figs. 2 and 9, and either small, as shown, or of the area of the sides of the impact-wheel. Instead, however, of simply placing the impact-roller within a suitably-formed boxing, which permits of the protrusion of but a limited portion of its peripheral surface, the said roller may, while similarly projecting, be provided with an axle,  $d^e$ , journaled in the clamp-plates, as shown in Figs. 9 and 10.

Instead of employing a cylindric roller, it is obvious that it is equally possible and convenient to employ, as shown in Fig. 11, a sphere or ball, which, as in the case of the roller, may either be mounted upon an axle or be housed in a suitably-formed spherical boxing, either of which arrangements permits of the protrusion of but a limited portion of the surface of said sphere beyond the periphery of the impact-wheel.

Such being a good construction of my device, its operation will be readily understood. The locking-screw  $e'$  of the thimble being loosened, the thimble is rotated to a desired set nearer to or farther from the impact-wheel, and then the locking-screw is driven in to hold it in its adjusted position. The bit being entered within the casing and being loosely retained by the spring-jaws of the ferrule, and the impact-wheel being set in motion, the impact roller or sphere under the vertical upward thrust of the bit against the filling in the tooth encounters the head of the plunger, which is forced up by the bit into its path, and imparts to said bit through the medium of said plunger a series of blows. The impact roller or sphere, by virtue of its being a roller or sphere and not a fixed lug or other projection, rolls in a contrary direction to that of the wheel over the head of the plunger, and so relieves the friction of the impact, and avoids the excessive wear of the head of the plunger, which in tools of the ordinary construction occasions the rapid destruction of

said plunger. This is equally true whether the impact roller or sphere be mounted upon an axle or otherwise contained in a suitable boxing or housing.

Having thus described my invention, I claim (5 and desire to secure by Letters Patent—

1. In a dental mallet, the combination of a bit-actuating plunger, an impact-wheel, and a roller or sphere which is housed within said wheel, and a portion of the periphery or surface of which projects beyond the periphery of said impact-wheel, substantially as set forth. 70

2. In a dental mallet, in combination with a casing, a thimble applied to the upper portion of the casing and adapted to be adjusted longitudinally with respect to said casing, a plunger contained in said thimble, an impact-wheel, and a roller or sphere which is housed within said wheel, the axis of which is parallel with the axle of the wheel, and a portion of the periphery of which projects beyond the periphery of said wheel, substantially as set forth. 80

3. In a dental mallet, in combination with a casing, a thimble applied to the upper portion of the casing and adapted to be adjusted longitudinally with respect to said casing, a locking device for maintaining the thimble in its adjusted position, a plunger contained in said thimble, an impact-wheel, and a roller or sphere which is housed within said wheel, the axis of which is parallel with the axle of the wheel, and a portion of the periphery of which projects beyond the periphery of said wheel, substantially as set forth. 85 90 95

4. In a dental mallet, the combination of a casing, standards erected therefrom, an impact-wheel housed with respect to said standards, a forked head embracing said wheel, an axle for said wheel passing through both the standards and the forked head and slightly longer than the extreme outside breadth of said standards, and a false-head screw applied thereto, substantially as set forth. 100 105

5. In combination with an impact-wheel, a boxing secured within the wheel, an impact roller or sphere contained within said boxing, a portion of the periphery of which roller or sphere projects beyond the periphery of the wheel, and clamp-plates to retain the impact roller or sphere within the boxing, substantially as set forth. 110

In testimony whereof I have hereunto signed my name this 7th day of July, A. D. 1886.

HENRY C. REGISTER.

In presence of—

J. BONSALE TAYLOR,  
JOHN JOLLEY, Jr.