(No Model.)

J. D. WILKENS.

DENTAL PLUGGER.

No. 395,604. Patented Jan. 1, 1889.

Fig: 1.

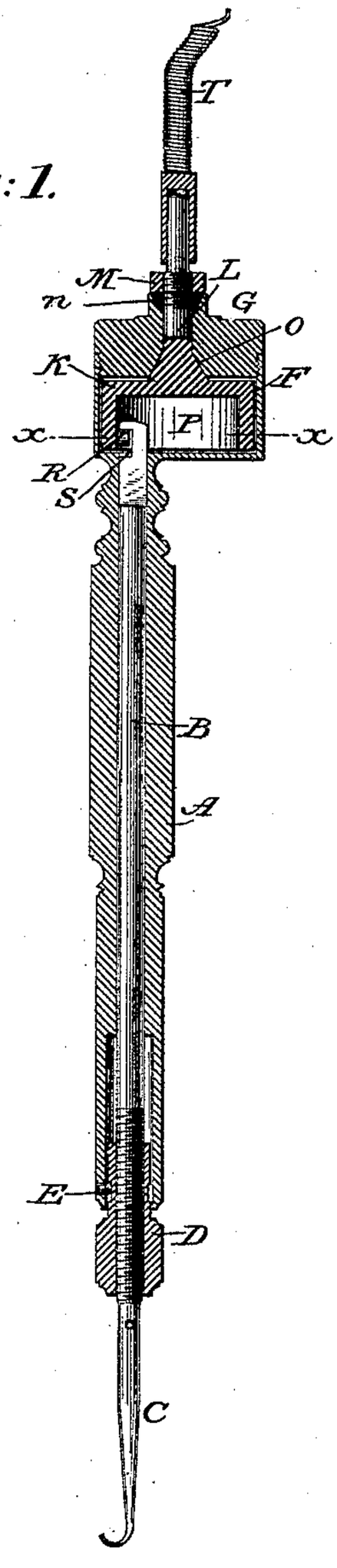


Fig: 2.

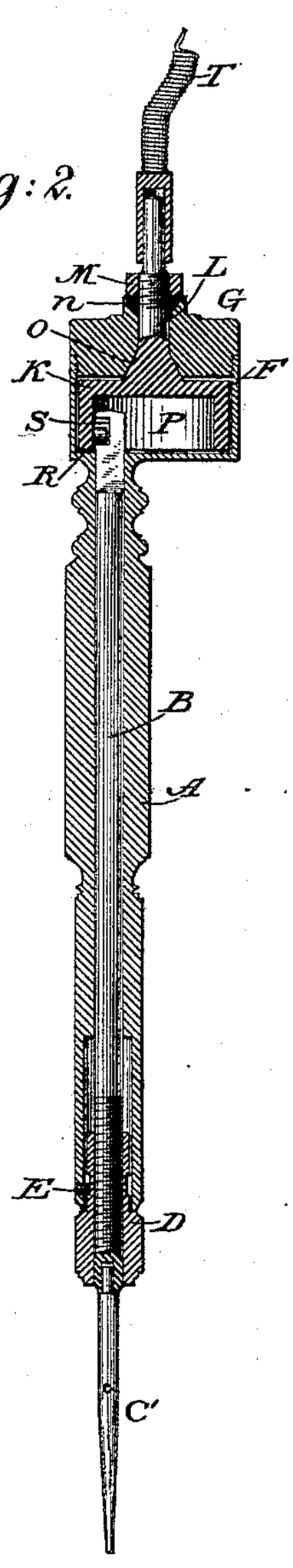
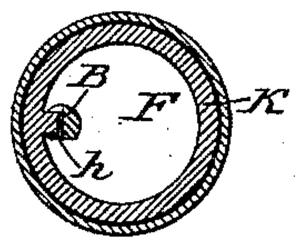


Fig: 3.



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UNITED STATES PATENT OFFICE.

JOHN D. WILKENS, OF NEW YORK, N. Y.

DENTAL PLUGGER.

SPECIFICATION forming part of Letters Patent No. 395,604, dated January 1, 1889.

Application filed July 12, 1888. Serial No. 279,765. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. WILKENS, of the city of New York, in the county and State of New York, have invented certain new and useful Improvements in Engine-Driven Dental Mallets or Pluggers; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification, in which—

Figure 1 is a central longitudinal section of my improved dental plugger as adjusted to deliver upward or "pull" blows with the plugger-point; Fig. 2, a similar section illustrating the plugger when adjusted to deliver downward or "thrust" blows; and Fig. 3 is a cross-section in line *x x* of Fig. 1.

The object of my invention is to simplify the construction and operation of engine-driven dental mallets or pluggers, and to provide for the delivery by the same hammer or plunger of either pull or thrust blows, as desired, by the operator, and for the ready adjustment of the length of stroke of the plunger, and consequently of the force of the blow.

It consists in the combination, in a suitable handle, of an adjustable reciprocating plunger-rod, to which the plugger-points or plugging-bits are attached, an actuating-wheel driven by the engine, a pin upon the wheel engaging at each revolution one of the end walls of a recess in the side of the rod, an adjusting sleeve or nut fitted upon the rod to partake of its movements, and a controlling-pin projecting from the handle into a recess in the periphery of the sleeve, or vice versa, to limit the play of the rod, all substantially as herein described and claimed.

In the accompanying drawings, A represents the handle of the dental mallet or plugger. It may be of any suitable outward form, and is perforated longitudinally to receive the plunger-rod B, which carries the plugging-point C, and the perforation is enlarged at the lower end of the handle to admit of the free play therein of the upper end of a sleeve or nut, D, which is made to screw upon the plunger-rod B, or otherwise fitted thereto to admit of longitudinal adjustment thereon.

The rod is confined in the handle, and a limited longitudinal play therein is permitted thereto by means of a screw or pin, E, inserted laterally through the handle to project into an annular groove or recess encircling the portion of the nut D which is inclosed by the handle, the extent of play of the rod being determined by the width of said recess, as shown in Figs. 1 and 2.

The upper end of the handle A is enlarged to form a cylindrical chamber, F, at a right angle to the length of the handle. This chamber is closed by a cap, G. The upper end of the plunger-rod B projects into the chamber F, the opening through which the rod passes being flattened on one side, as shown in Fig. 3, to engage a counterpart flat face, *h*, on the end of the rod, and thereby prevent a rotation of the rod about its axis.

A wheel, K, is mounted in the cylindrical chamber F upon a spindle, L, having its bearing in the cap G. This spindle is provided with an encircling conical bearing at O to enter a counterpart seat on the inner face of the cap, and is threaded at its outer end to receive a nut, M, which, screwing thereon, revolves with it. A conical washer, *n*, fitting in a counterpart conical seat encircling the opening through the cap G, is interposed between the nut and the cap, so that by screwing up the nut the bearing of the spindle between the two conical seats is tightened, and all looseness or lost motion on the spindle due to wear in the joint may be taken up.

The wheel K is of a diameter to fill the chamber, and is provided with an inwardly-projecting peripheral flange, P, of suitable width to overlap the projecting end of the plunger-rod, the position of the chamber F being so adjusted in reference to this end of the plunger-rod as that the inner face of the flange P of the wheel shall pass in close proximity to said end, as shown in Figs. 1 and 2.

An actuating-pin, R, is fitted in the flange P to project therefrom far enough to pass through a slot, S, cut transversely in the proximate face of the end of the plunger-rod. The walls of the slot S are rounded or beveled slightly on both edges, and the slot S is of sufficient width to barely allow the rod to reciprocate to the full extent permitted by its

controlling-pin E without touching the actuating-pin R when the latter is inclosed by the recess, so that by a longitudinal adjustment of the plunger-rod, produced by turning the nut D, the pin R may be left free to pass through said slot in the revolution of the wheel K without engaging or moving the rod. By turning the nut D to the right or to the left, however, the upper or the lower wall of the slot S in the rod may be brought into position to be engaged by the pin R as the wheel K revolves, and as the pin comes into contact with the rounding or beveled faces of either wall it will force the rod B in that direction. Thus at each revolution of the wheel the actuating-pin R is made to impart an upward or a downward blow to the plunger-rod, and the force of said blow or the length of the stroke of the rod consequent thereon will be determined by the adjustment of the rod relatively to the pin as produced by turning the nut D.

The relation of the actuating-pin to the plunger-rod is positively maintained, notwithstanding any wear which may occur in the bearings of the spindle carrying said pin, by means of the adjusting-nut M, which serves to tighten up the bearings and take up any possible looseness or lost motion in the spindle.

The spindle of the wheel K is adapted to be fitted to the flexible shaft T of the dental engine, and the plugging-points C C′ are fitted to the end of the plunger-rod B in the customary manner. (See Fig. 2.)

In the operation of my invention, if a curved plugger-point, C, (see Fig. 1,) is to be used requiring an upward pull or blow upon the filling to be condensed, the operator, by turning the nut or sleeve D so as to shorten the length of the plunger-rod B within the handle, will bring the upper wall of the slot S thereon in position to contact with the revolving pin R on the wheel K as the latter is driven by means of its gearing with the engine, so that the pin at each revolution will lift the plunger more or less, according to the adjustment thereof, and thereby produce the required movement of the plugger. If, on the other hand, a straight plugger-point, C′, (see Fig. 2,) to be operated by a downward thrust or stroke is needed, the length of the plunger-rod within its handle is extended by turning the nut D in the opposite direction, so as to bring the lower wall of the slot S into position for engagement with the actuating-pin R. By an intermediate adjustment of the length of the rod B its engagement with the actuating-pin may be prevented altogether, so as to cause a cessation of the movement of the rod without arresting the revolution of the wheel K.

The action of the plugging-point as well as its movement is thus directly controlled independently of the movement of the engine or the revolution of the actuating-wheel by a simple adjustment of the sleeve or nut D.

I claim as my invention—

1. The combination, in a dental plugger, of the handle, the plunger-rod playing longitudinally in said handle and having a lateral transverse slot in its upper end, the sleeve or nut adjustable longitudinally upon said rod, the controlling-pin, and the wheel journaled in the upper end of the handle and carrying an actuating-pin to engage the slotted end of the plunger-rod, substantially in the manner and for the purpose herein set forth.

2. The combination, in a dental plugger, of the handle, the longitudinally-reciprocating plunger-rod fitted therein, the wheel journaled in the upper end of the handle and actuating said rod, substantially as set forth, the spindle carrying said wheel having a conical bearing at its inner end within the handle, the conical washer encircling the outer end of the spindle to fit in a counterpart seat formed on the outside of the handle, and a nut screwing upon the spindle to bear against said washer, all substantially in the manner and for the purpose herein set forth.

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

JOHN D. WILKENS.

Witnesses:
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