

(No Model.)

W. A. KNOWLES.

DENTAL ENGINE.

No. 386,476.

Patented July 24, 1888.

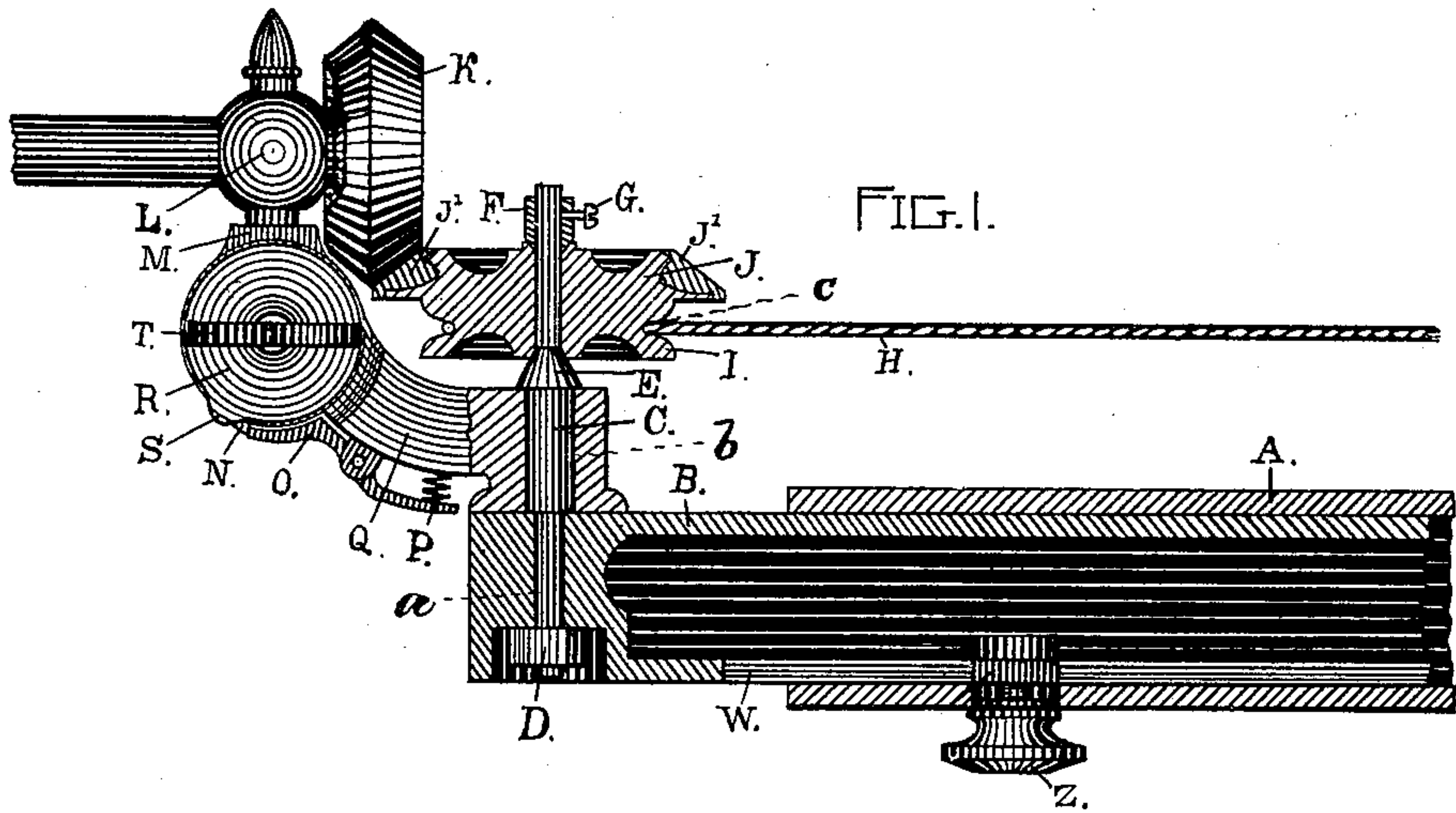


FIG. 2.

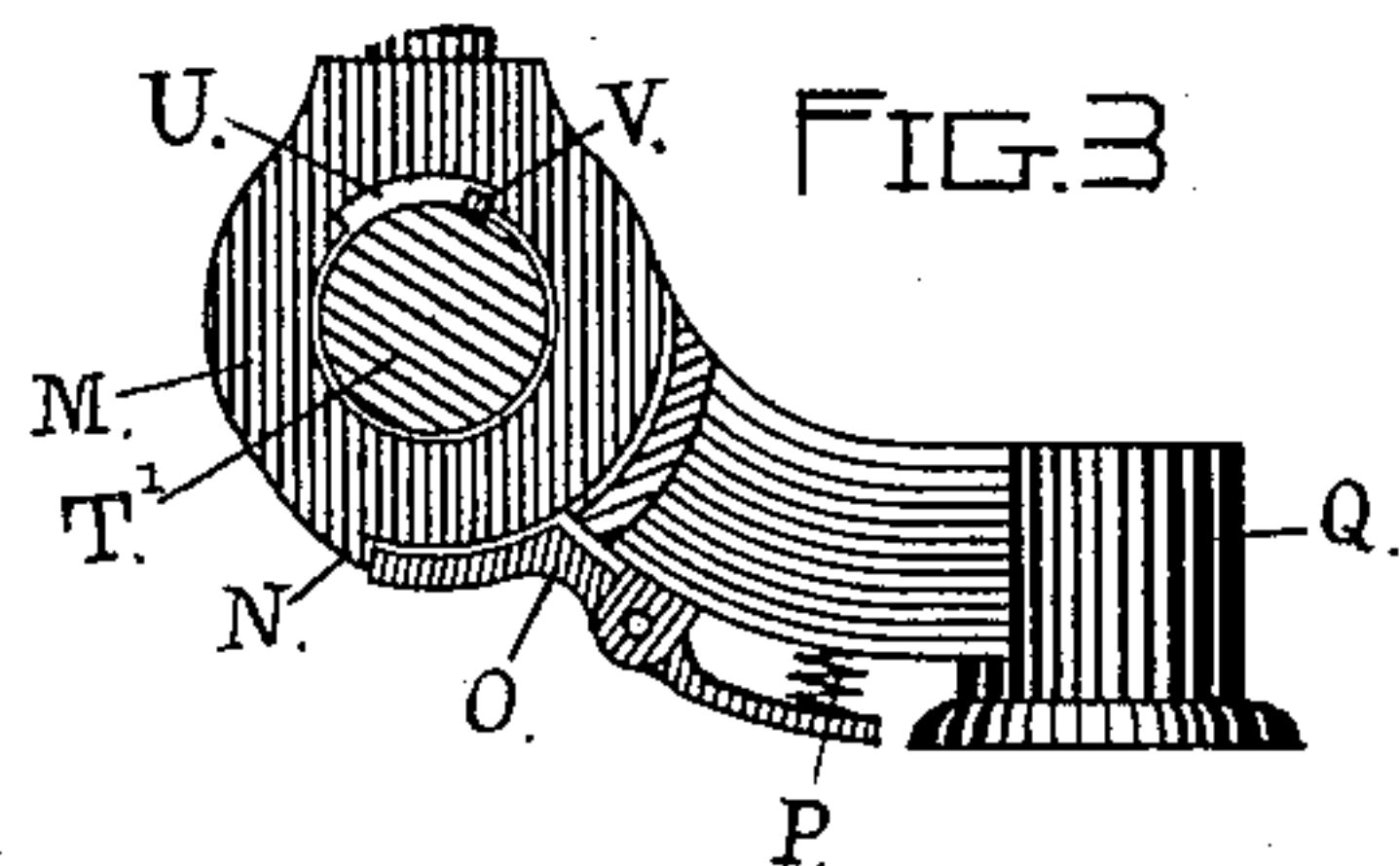
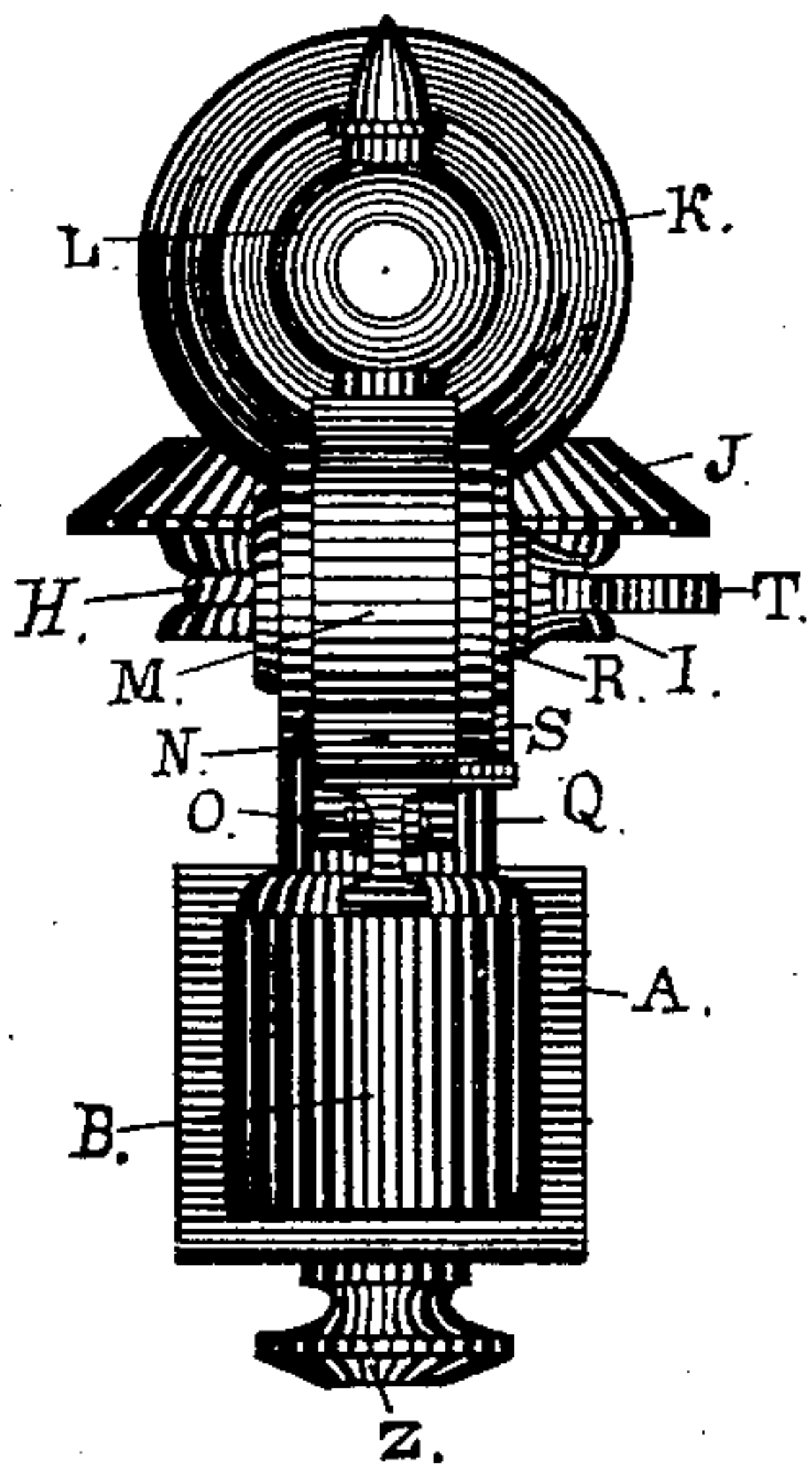
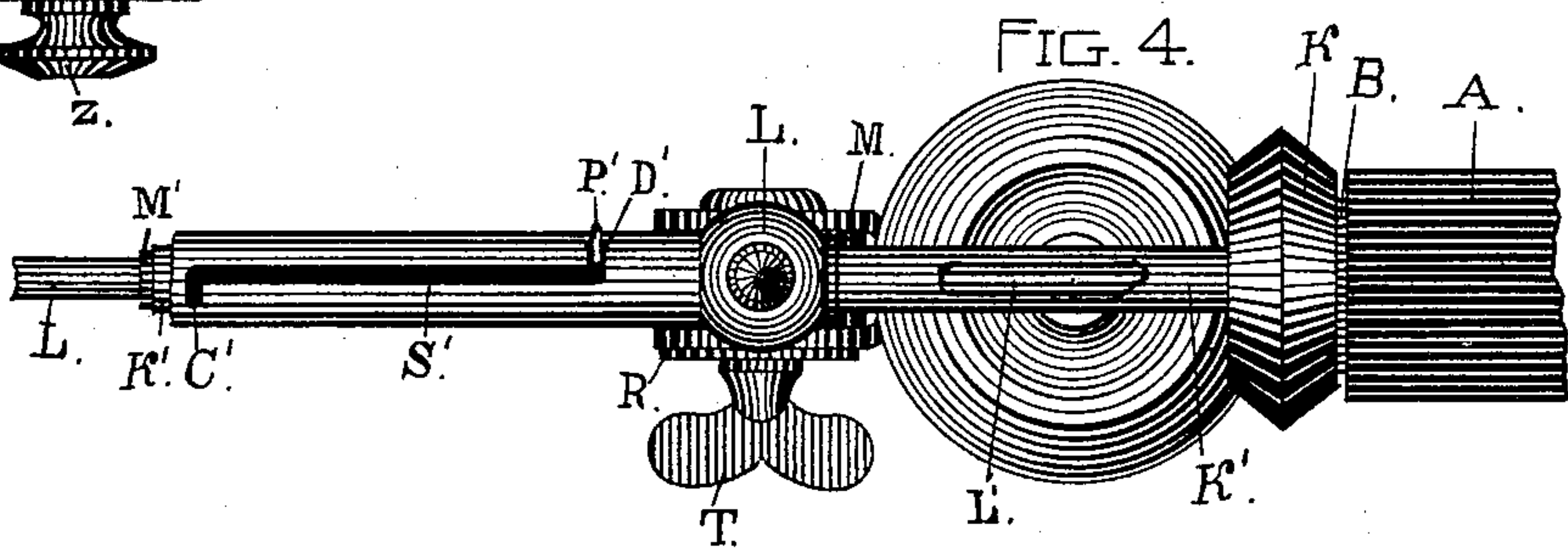


FIG. 4.



ATTEST,  
*John H. Redstone.*  
*L. E. Redstone.*

INVENTOR,  
*William A. Knowles.*



# UNITED STATES PATENT OFFICE.

WILLIAM A. KNOWLES, OF ALAMEDA, CALIFORNIA.

## DENTAL ENGINE.

SPECIFICATION forming part of Letters Patent No. 386,476, dated July 24, 1888.

Application filed August 25, 1887. Serial No. 247,822. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. KNOWLES, a citizen of the United States, residing in the city and county of Alameda, in the State of California, have invented a new and useful Dental Engine, of which the following is a specification.

My invention relates to improvements in dental engines, which will be understood by reference to the accompanying drawings and the letters referring thereto.

Figure 1 is a longitudinal sectional elevation; Fig. 2, a front elevation; Fig. 3, a broken sectional elevation; Fig. 4, a plan view.

Referring by letter to the said drawings, B indicates a slotted frame, and A a sleeve thereon, which is secured in proper position and adjusted by means of a set-screw, Z, which passes through a longitudinal slot, W, in the said case or frame, as more fully shown in Fig. 1 of the drawings. The forward end of this main frame or casting B is provided with a vertical annular aperture, *a*, through which passes a spindle, C, having a stop, D, on its lower end, and this spindle is of a length sufficient to receive a hinge-bracket and drive-pulley, as will be presently explained.

Q indicates a hinged bracket, which is placed upon the upper outer side of the frame B, and has an eye, *b*, to receive the spindle C, whereby it is held in position. This spindle has a conical enlargement, E, above the said hinged bracket, which, in addition to furnishing a stop for the said bracket, also serves as a bearing for the horizontal drive-pulley I, which is also placed upon the said spindle, and is prevented from rising by the collar F and set-screw G. This pulley I has a circumferential groove, *c*, to receive the drive belt or rope, and is also formed with a friction-wheel, J, which is designed to be placed in frictional contact with a friction-wheel on one end of the cable or burr shaft, as will be presently described.

M indicates the head-stock, which is hinged to the bracket Q by means of a transverse pintle, T'. The cable or burr shaft has its bearing in this head M, and is provided at one end with a fixed friction-wheel, K, which engages with the horizontal friction-wheel J, journaled on the vertical spindle C. The jour-

nal-aperture of the head-stock is provided with a groove, U, forming shoulders *d e* therein. This horizontal pintle or wing-bolt, which passes through the aperture of the said head-stock, is provided with a spline, V, which moves in the groove U as the said bolt is turned.

O indicates a locking-lever, which is hinged to the under side of the hinge-bracket, as shown, and has a spring, P, interposed between the rear end of the said lever and the bracket. The forward end of this lever O is suitably curved to pass around the journal end of the head-stock and engages a shoulder, N, thereon, as more fully shown in Fig. 3 of the drawings.

The wing-bolt T' is provided with a rigid collar, R, which has a cam projection, S, thereon, and is designed to engage the biting end of the lever O and throw the same out of engagement with the shoulder N of the head-stock, so that the said head-stock may be allowed to swing on the end of the bracket.

When the machine is in operation, the friction-wheels J and K engaging each other, it will be seen that the lever O is engaging the shoulder on the cross-head. It will also be seen that the bracket Q may be swung around horizontally in any desired position on the frame B without disengaging the gearing, so as to accommodate the operator in using drill; but when the wing-bolt has been turned so as to cause the cam S to engage the lever O the head-stock will be allowed to swing down and the pulley on the cable-shaft thrown out of engagement with the drive-pulley. It will be seen that by having the spline V on the bolt T' the mere turning of the said bolt in one direction will cause the spline to engage the shoulder at one end of the groove in the head-stock and raise it vertically until the engaging-lever O has been brought into action to sustain it in such position, when the grip on the bolt may be released.

Having described my invention, what I claim is—

1. The combination, in a dental engine, of the hinged bracket carrying a spring-actuated lever, a head-stock journaled thereon and having its journal-aperture grooved, the hinge-bolt having a spline to enter said groove, a shoulder on the said stock for the engagement

of the spring actuated lever, and a cam on the bolt to disengage the said lever from the head, substantially as specified.

2. The combination, in a dental engine, substantially as described, of the hinged bracket, the spring-pressed lever thereon, the head-stock journaled on the outer end of the bracket and having the groove in its journal-aperture, and a shoulder for the engagement of said lever, and the hinge-bolt having a spline to enter the said groove, substantially as specified.

3. The combination, with the main frame B,

having the vertical aperture therein, as described, of the vertical pintle having the conical enlargement, the hinged bracket and also the drive-pulley journaled on said spindle, the head-stock, the spring-actuated lever for engaging said stock and the hinge bolt and cam thereon, and the cable-shaft having the vertical pulley, substantially as specified.

WILLIAM A. KNOWLES.

Witnesses:

E. H. THARP,  
JOHN H. REDSTONE.