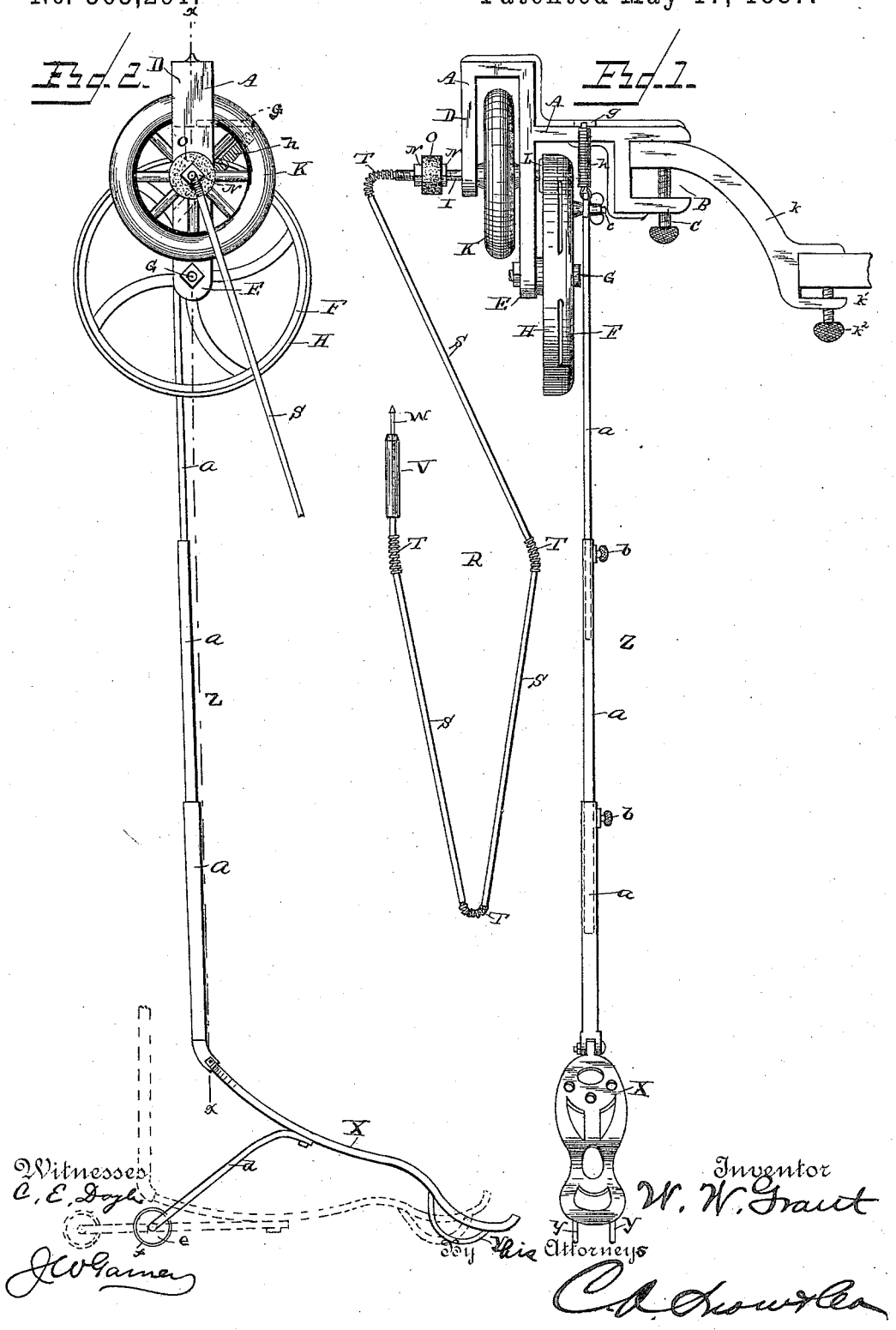
(No Model.) 2 Sheets—Sheet 1.

W. W. GRANT.

DENTAL ENGINE.

No. 363,291. Patented May 17, 1887.



(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

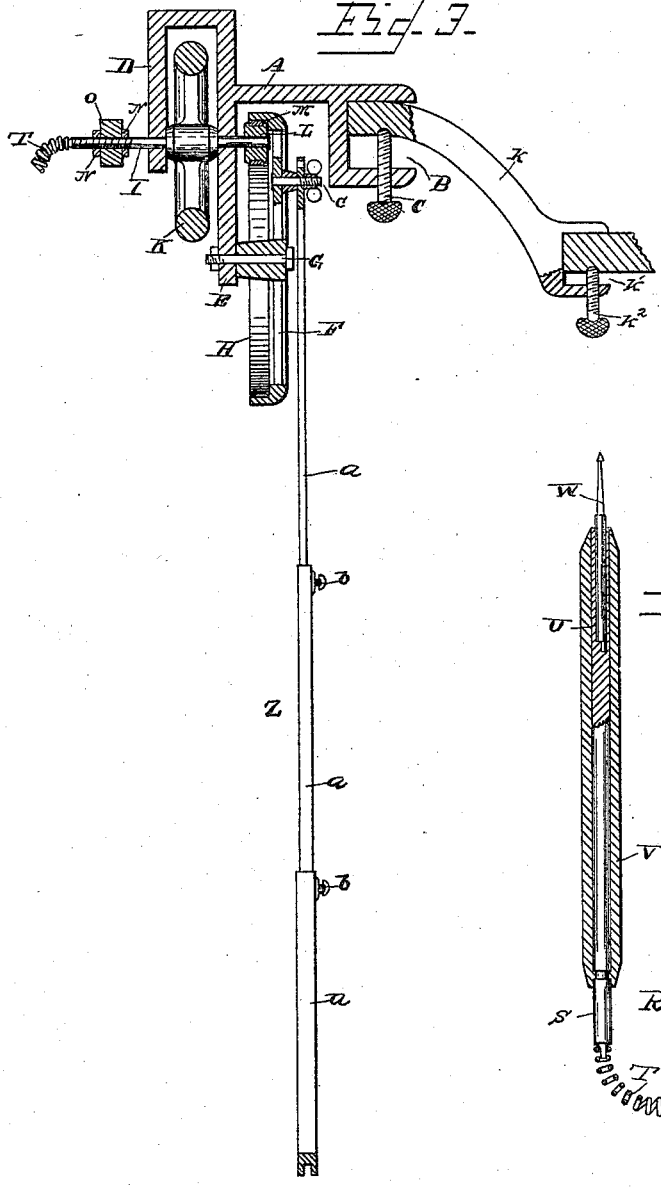
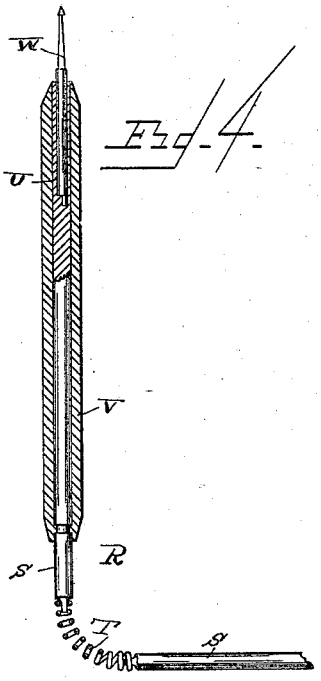


Fig. 4.



Witnesses
C. E. Doyle
J. C. Warner

Inventor
W. W. Grant
By his Attorneys
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UNITED STATES PATENT OFFICE.

WILLIAM W. GRANT, OF ATHENS, TENNESSEE.

DENTAL ENGINE.

SPECIFICATION forming part of Letters Patent No. 363,291, dated May 17, 1887.

Application filed October 15, 1886. Serial No. 216,355. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. GRANT, a citizen of the United States, residing at Athens, in the county of McMinn and State of Tennessee, have invented a new and useful Improvement in Dental Engines, of which the following is a specification.

My invention relates to an improvement in combined dental engines and lathes; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings, Figure 1 is a front elevation of a combined dental engine and lathe embodying my improvements attached to a table or desk. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical longitudinal sectional view taken on the line *x x* of Fig. 2. Fig. 4 is a detail sectional view of the hand-piece, showing the boring-tool attached thereto.

A represents the main frame of my combined dental engine and lathe, which is preferably made of cast metal and is provided on one side with a rectangular opening, B, which is adapted to fit on the projecting edge of a table-top. Through the lower side of the said opening extends the clamping-screw C, the function of which is to clamp the frame securely to the edge of the table. From the outer end of the frame projects a depending arm, D, and on the inner side of the said arm, and at a suitable distance therefrom, is a second depending arm, E, which is longer than the arm D.

F represents a drive-wheel, which is journaled on a bolt, G, that is attached to the lower end of the arm E, the drive-wheel being secured on the inner side of the said arm. That side of the drive-wheel which is opposed to the arm E is provided with a projecting rim or flange, H.

I represents a horizontal shaft, which is journaled in openings which are made in the arms D and E. On that portion of the shaft I which is between the arms D and E is secured a fly-wheel, K. The inner end of the shaft projects beyond the arm E and is provided with a small pulley, L. The said pulley has a peripheral groove, in which is secured a rubber ring, M, that bears against the inner side of the rim H of the drive-wheel, and thus the pulley M constitutes a friction-wheel, which is adapted to transmit the motion of the drive-wheel to the shaft I and fly-wheel K. The outer end of the shaft I is provided with screw-threads and clamping-nuts N, which work thereon and are adapted to clamp an emery-wheel, O, between them. To the outer end of the shaft I is attached a flexible rod, R, that is made of any desired number of sections S, jointed together and to the shaft I by means of coiled springs T. To the outer end or section of the flexible rod is attached a hand-piece, V, in which the said outer section is free to rotate, and the latter is also provided with a recess, U, forming a socket for the boring tube or bit W.

X represents a pedal, which is provided at its outer end, on its under side, with depending curved arms Y, which are made of wire and are adapted to rock on the floor, and thus constitute the fulcrum for the pedal. To the inner end of the latter is attached a pitman, Z, which is made of three or more telescopic sections, *a*, provided with clamping-screws *b*, by means of which the said pitman may be lengthened or shortened at will. The upper end of the pitman is attached to a crank-pin, *c*, with which the drive-wheel F is provided. To the under side of the pedal, near the center thereof, is attached one end of a curved flat spring, *d*. The outer end of the said spring is bifurcated, and in the said bifurcated end of the spring is journaled a roller, *e*, which is provided with a tire or ring, *f*, which is made of rubber or similar material. The said roller bears on the floor, and when the pedal is depressed the spring is straightened to a horizontal position, and the roller is thereby forced outwardly beyond the inner end of the pedal. As soon as the pressure of the foot is relieved from the pedal the latter is returned to its normal position, (shown in solid lines in Fig. 2,) by the springs.

In order to prevent the drive-wheel from stopping on a dead-center, I provide an arm, *g*, which is secured to the frame A above the drive-wheel and projects laterally from the said frame. To the outer end of the said arm

is attached a coiled spring, *h*, the lower end of which is attached to the upper end of the pitman.

The operation of my invention will be very readily understood from the foregoing description and by reference to the drawings.

k represents an extension supporting-arm which is adapted to support the combined lathe and engine at a distance from the table or desk when desired. The said arm *k* is curved, as shown, and its outer end is adapted to enter the opening B of the frame A, where it will be clamped by the screw C. The inner end of the said arm *k* is provided with an opening, *k'*, adapted to fit the projecting edge of the table or desk, and in the lower side of the said opening is a clamping-screw, k^2.

A combined dental engine and lathe thus constructed is extremely cheap and simple, is very readily set up and arranged to operate, and may be packed in a very small space when not in use.

I have constructed a full-sized dental engine and lathe which weighs less than five pounds, and when packed occupies a space of six and a half by six and a half by twelve inches.

Having thus described my invention, I claim—

1. In a dental engine and lathe, the combination of the supporting-frame, the drive-wheel, the pedal connected to the drive-wheel to rotate the same, and the shaft I, journaled in the frame and having the fly-wheel, and provided with a friction-wheel engaging with the drive-wheel, as set forth.

2. The pedal having the arm Y at one end to form the fulcrum, the spring *d* on the under side of the pedal, and the roller at the outer end of the said spring, substantially as described.

3. The pedal having the curved arm Y at one end, forming the fulcrum, as set forth.

4. The pedal having the spring *d*, provided at the outer end with a roller, as set forth.

5. In combination with the supporting-frame, the drive-wheel F, journaled therein, the pedal connected to the frame for operating the drive-wheel, the fly-wheel shaft I, operated by the drive-wheel, and the emery or grinding wheel O on the shaft I outside the frame, the dental engine or lathe being connected to and receiving motion from the shaft I beyond the emery-wheel O, whereby the motion of the shaft I to work the dental engine is utilized to turn the grinding-wheel and the latter is in position for use at will, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

WILLIAM W. GRANT.

Witnesses:
J. H. C. FOSTER,
M. L. ELLIS.