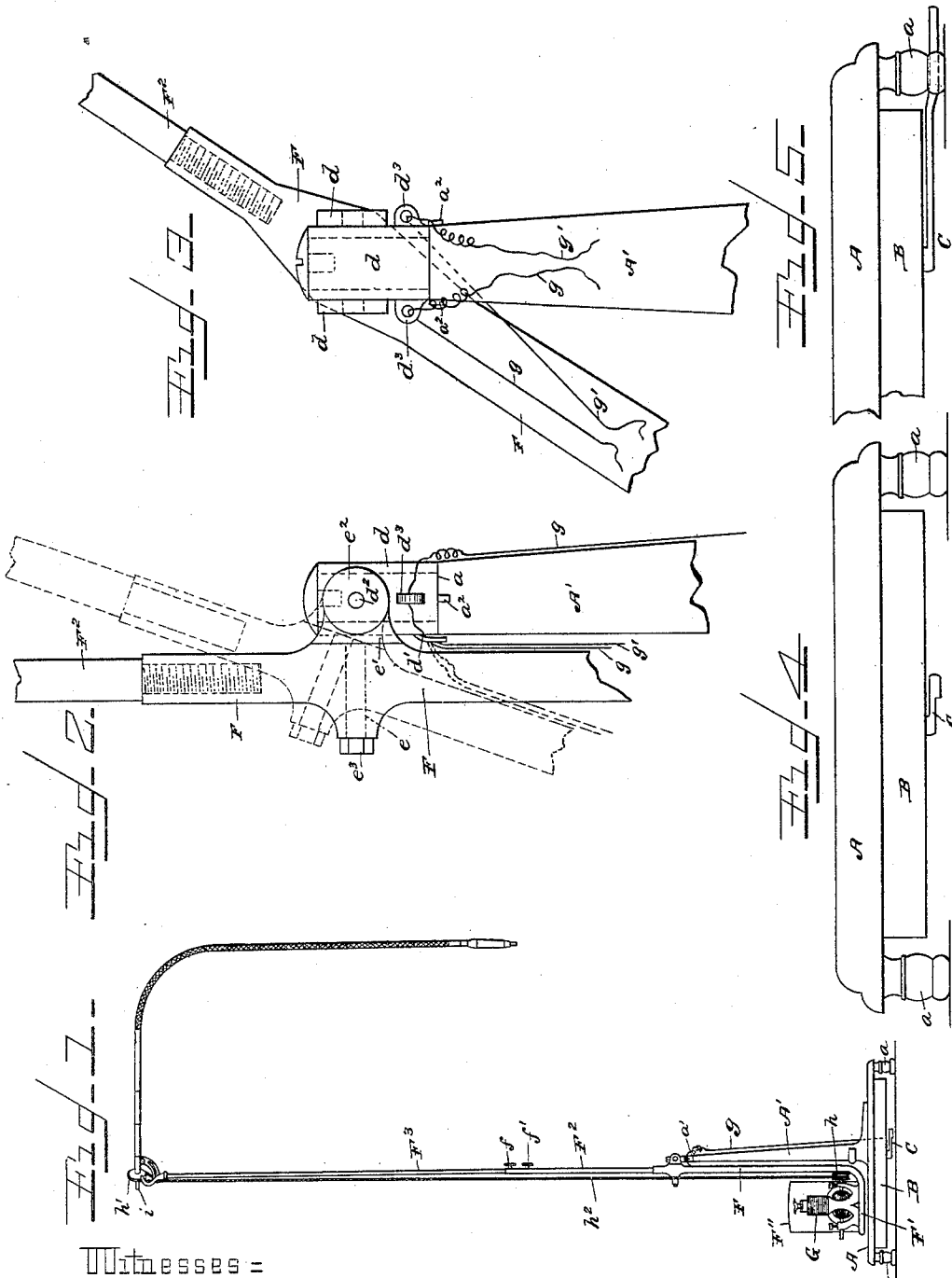


(No Model.)

A. C. MILLER & G. F. WELLS.
DENTAL ENGINE.

No. 462,267.

Patented Nov. 3, 1891.



Witnesses =

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UNITED STATES PATENT OFFICE

ANDREW C. MILLER AND GARDNER F. WELLS, OF AUBURN, NEW YORK.

DENTAL ENGINE.

SPECIFICATION forming part of Letters Patent No. 462,267, dated November 3, 1891.

Application filed March 25, 1891. Serial No. 386,305. (No model.)

To all whom it may concern:

Be it known that we, ANDREW C. MILLER and GARDNER F. WELLS, citizens of the United States, and residents of Auburn, county of Cayuga, and State of New York, have invented a new and useful Improvement in Dental Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

Our invention relates to that class of dental engines employing an electric motor for driving the shaft actuating the mallet or drill and in which the portion of the standard or staff carrying such shaft is pivoted to the fixed standard or base-frame of the engine in such manner as to permit it to be rocked or vibrated from its normal upright position to an inclined position to adapt it to the work to be done.

It consists in locating the motor on a base or foot flange on the pivoted standard under such arrangement relative to the pivot as that its weight will tend to hold said standard in an upright position and to return it thereto when from any cause it has deflected therefrom.

It further consists in the arrangement of the pivots or swivel-joint connecting the staff or standard with its rigid base-support for permitting it to be vibrated in any direction from an upright position in the arrangement relative to said pivot of the conductors connecting the motor with the rheostat, and in certain details of construction and arrangement of parts, all as hereinafter described and claimed.

In the accompanying drawings, Figure 1 represents our improved dental engine in side elevation. Fig. 2 is a similar view, enlarged, of the swivel-joint connection between the pivoted staff or standard and the rigid upright support therefor, and Fig. 3 is a similar view taken at right angles to Fig. 2. Fig. 4 is a side elevation, enlarged, of the base or support for the engine; and Fig. 5, a view in elevation of a portion thereof, taken at right angles to Fig. 4.

A indicates a base of any suitable form and mounted, preferably, on short legs *a a*, which may be provided with rollers or casters, if desired, to facilitate its movement from

place to place and providing room underneath the base-plate for a box or receptacle B, containing the rheostat, through which the current passes to the motor, and which is connected to the battery or dynamo through any suitable arrangement of conductors.

C indicates the switch-lever pivoted to the lower wall of the receptacle B and projecting on one side thereof into convenient position to be vibrated by the foot of the operator.

A' is a standard rigid on the base-plate, made, preferably, in the tapering form indicated and of any required height, and terminating at its upper end in a shoulder *a'* and a projecting tenon, (indicated in dotted lines), forming an upright stud or pivot, on which is journaled a sleeve *d*, held in place on said pivot by a screw, as shown. This sleeve *d* is provided on one side with a pendent arm or spur *d'*, which, by coming in contact with lugs *a''* on opposite sides of the standard, serves to limit the rotation of the sleeve *d* through more than half a revolution, and so prevents the wire conductors, hereinafter referred to, from becoming twisted together and injured. The sleeve is perforated to receive pins or screws *d''*, on which perforated ears *e''*, formed on the head *e'* of a pin *e*, to stride the sleeve *d*, are journaled, permitting said pin *e* to rock on the pins or screws *d''* as a horizontal axis. The pin *e* is at right angles to the pivot *d''*, and upon it the staff or standard F is pivoted, said standard having thus, through the construction described, a vertical and two horizontal pivotal connections with the supporting-upright A', which permit it to vibrate in any desired direction within certain limits, thereby making substantially a universal joint between said standard and upright. The staff or standard F is secured on the pin *e* by a nut *e''*, and is provided on its lower pendent end with a base-plate or foot-flange F', on which is mounted an electric motor G of any suitable construction and connected with the rheostat at B by conducting-wires *g* and *g'*, which pass from the rheostat up through perforated ears *d'' d''* on opposite sides of the swiveling sleeve *d* and thence down again to the motor on the foot-flange F'. By this arrangement the wires are brought into close proximity to the pivotal point of the standard, and mov-

ing, as they do, with the sleeve *d* in close proximity to the standard-pivots, are protected against undue strain and prevented from becoming twisted together.

5 The weight of the motor when not overcome by outside force will hold the standard F in upright position and return it thereto when the deflecting force is withdrawn.

10 F'' indicates a cover for protecting the motor from dust, &c.

The upper portion of the standard F is made extensible, as follows: The part F, pivoted to the upright A, terminates in a screw-threaded socket, into which a tubular extension F² is screwed, and an upright portion of the standard, consisting of a rod F³, fits and is adapted to be adjusted up and down in the upper end of the tubular portion F², set-screws *f* and *f'* serving to hold the part F³ at any desired adjustment.

20 The motor G is provided with a band-pulley *h*, from which a band *h*² extends up over a similar pulley *h'* on a shaft *i*, journaled in suitable bearings in the upper end of the staff or standard, and from which motion is imparted to the drill or mallet in any usual or suitable manner. By the adjustment of the part F³ the height of the shaft *i* can be adjusted as desired and any required tension given to the band *h*².

30 By the construction and arrangement described the pivoted standard carrying the actuating-shaft is upheld in operative position by the weight of the motor located on its base or foot flange, and the springs ordinarily employed for holding said standard are dispensed with. This arrangement gives great freedom of movement to the standard, and, in connection with the manner described of pivoting the latter, allows it to be deflected freely in any direction. The arrangement of the conducting-wires connecting the motor with the rheostat or prime motor prevents their becoming entangled and twisted or injured.

The rheostat and switch may be of any usual or preferred form and arrangement which will permit the regulation of the current to the motor for controlling the speed of the dental engine.

Having described our invention, we claim as new and desire to secure by Letters Patent—

1. In a dental engine, the staff or standard carrying the actuating-shaft, pivoted to its support, in combination with a motor mounted on a base-plate or foot-flange on said pivoted standard, substantially as described. 55

2. The pivoted standard carrying the actuating-shaft of a dental engine, in combination with a motor mounted on a base-plate or foot-flange on said standard and conducting-wires connected with the pivot of said standard, substantially as described. 60

3. The combination, in a dental engine, of a fixed standard, a pivoted standard having both a vertical and a horizontal pivotal connection with said fixed standard and carrying the actuating-shaft, an electric motor arranged on said pivoted standard to uphold it in operative position, and conducting-wires connected with the pivot of said standard, substantially as and for the purpose described. 70

4. The combination, with a dental engine having a fixed upright or support, of a staff or standard pivoted to said upright, a motor carried on said pivoted standard, a swiveling connection between said standard and fixed upright, and stops for limiting the movement of said pivoted standard, substantially as described. 75

In testimony whereof we have hereunto set our hands this 21st day of March, A. D. 1891. 80

ANDREW C. MILLER.
GARDNER F. WELLS.

Witnesses:

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