

No. 151,653.

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UNITED STATES PATENT OFFICE.

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W. WARRINGTON EVANS, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN DENTAL ENGINES.

Specification forming part of Letters Patent No. **151,653**, dated June 2, 1874; application filed April 19, 1873.

To all whom it may concern:

Be it known that I, W. WARRINGTON EVANS, of Washington, District of Columbia, have invented an Improvement in the Application of Water-Power as a Motor for Dental Engines or Drills, of which the following is a specification:

My invention relates to the application of water-power as a motor for dental engines or drills. The object of this part of my invention is to avoid the laborious foot or treadle motion now used, and to give a sure uniform speed to the drill. The invention consists in the combination of a single friction-wheel and flexible-movement shafts on the end of a shaft upon the inside or outside of a driving-wheel attached to the water-motor.

Figure 1 is a front elevation of engine inclosed in iron box, with friction-wheel in place; Fig. 2, side elevation of dental-drill attachments.

In describing Fig. 1, A is an iron box, inclosing the water-engine, or, if preferred, clock-work; A' A', the connections for supply and waste pipes; B, the driving-wheel attached to the motor inside. B' shows by dotted lines a beveling out of the driving-wheel B, to allow of free play to the friction-wheel C. C is a friction-wheel, of brass, iron, or any other material, running on the inside of the driving-wheel B, or, if preferred, on the outside of the same; D, a sleeve, supported by a bracket, E, that can be raised or lowered by the clamp a, to increase or diminish the friction of the wheel C; b, a screw, to secure the bracket to the box A. G is a spiral spring or flexible sleeve, attached to the rigid sleeve D by male and female screw-thread, that allows the shaft F to revolve easily, and prevents the small spiral spring g in Fig. 2 from doubling or twisting when too much pressure is put upon the drill. In Fig. 2, C represents the friction-wheel, attached to a small steel shaft, d, that revolves inside of the rigid sleeve D in Fig. 1; g, a spiral spring screwing into the shaft d at one end, and attached to the long shaft F at the other, and revolving through the flexible sleeve G in Fig. 1, allowing free motion in all directions. F F' are long steel rods or shafts, connected together by a small spiral spring, similar to the one g, and passing through the flexible sleeve G'; H, hand-piece

or cylinder, with flexible sleeve G'' attached, which remains stationary in the hand while motion is being conveyed to the drill k by a small shaft running through the cylinder H, fastened to a small spiral spring like g, and to the shaft F'. G' G'' are flexible sleeves, answering the same purpose as G in Fig. 1, to allow of free motion to the shaft F F' and the hand-piece H. I is a rod or support, with a hook at one end, J, attached to a ring in the wall to allow of free motion, and two pulleys at the other, e e. ll is a cord passing over the pulleys e e, one end attached to the flexible sleeve G', the other to the small solid sleeve c, as supports for the shaft F; f, another cord attached to the rod I, and passing through a small pulley, i, fastened in the wall, and secured to a button a little below h; also, under the support I is another button. When finished with the instrument, the cord f can be detached from the upper button and secured to the lower, by this means raising the entire apparatus out of the way against the wall.

The box containing the water-engine might contain clock-work springs, and be attached to the chair or a table. The friction-wheel could be substituted by cog-wheel running in same manner.

I am not aware that previous to my drill any have ever been so arranged that they could be run by a portable water-motor fed by the usual water-service pipes.

I am aware that a combination of friction-wheels have been used for dental drills; also, that the arms or shafts have been in use I therefore make no claim to them of themselves; but

What I claim as my invention is—

1. The combination and arrangement of the rotating shafts of a dental drill and a portable water-motor fed by the water-service pipes, substantially as described.

2. The combination of the single friction-wheel or cog C in the end of the shaft F with the driving-wheel B of a suitable water-motor, and the universal-movement shafts F F', all as hereinbefore set forth.

W. WARRINGTON EVANS.

Witnesses:

OSCAR C. COX,

THOMAS C. CONNOLLY.