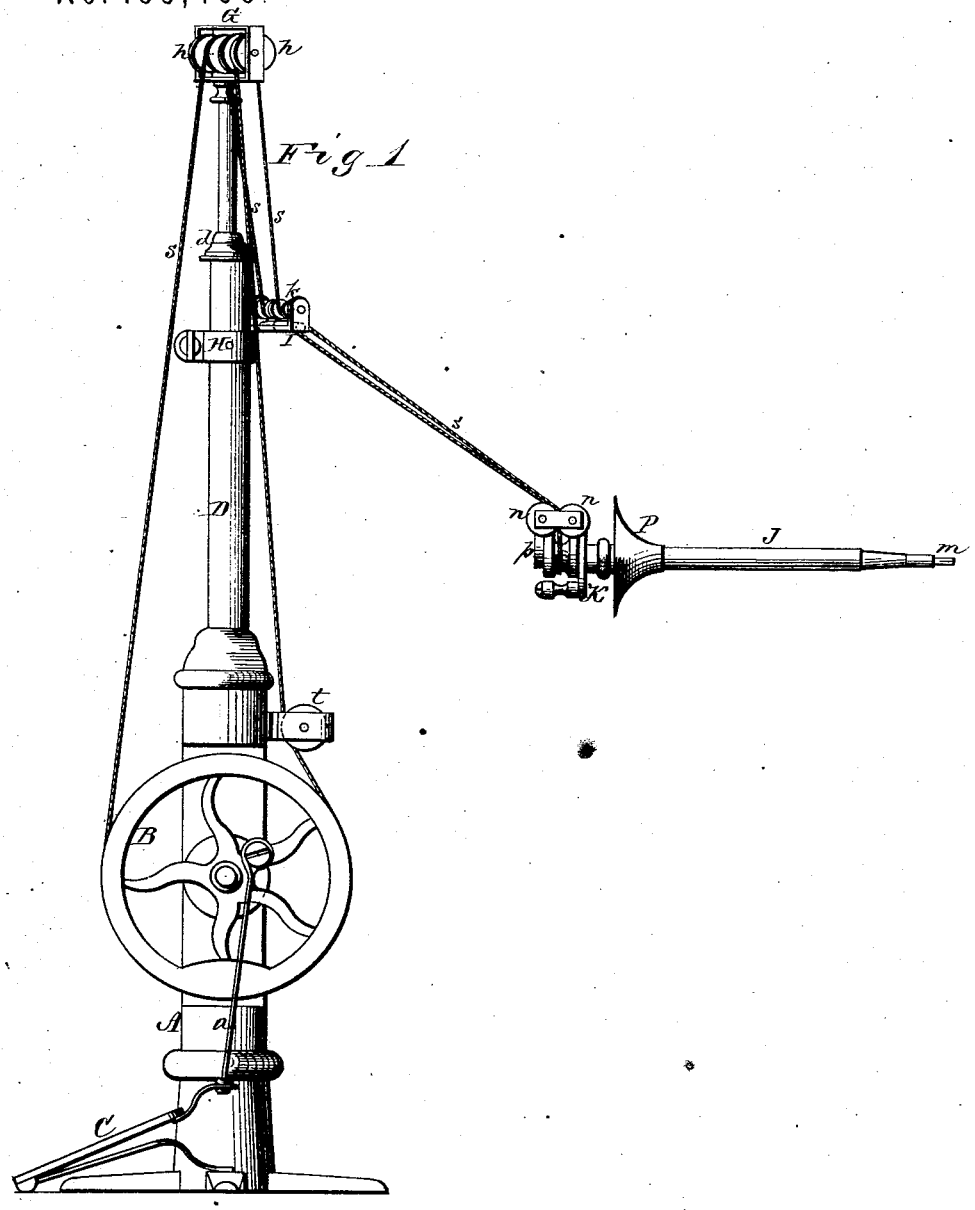
2 Sheets--Sheet 1.

H. M. EDSON & R. L. EVANS.

Dental-Engine.

No. 160,406. Patented March 2, 1875.

Fig 1



WITNESSES

Franck L. Durand

C. L. Ewert.

INVENTOR

Horace M. Edson

Robert L. Evans,

per

Alexander & Mason

ATTORNEYS

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

2 Sheets--Sheet 2.

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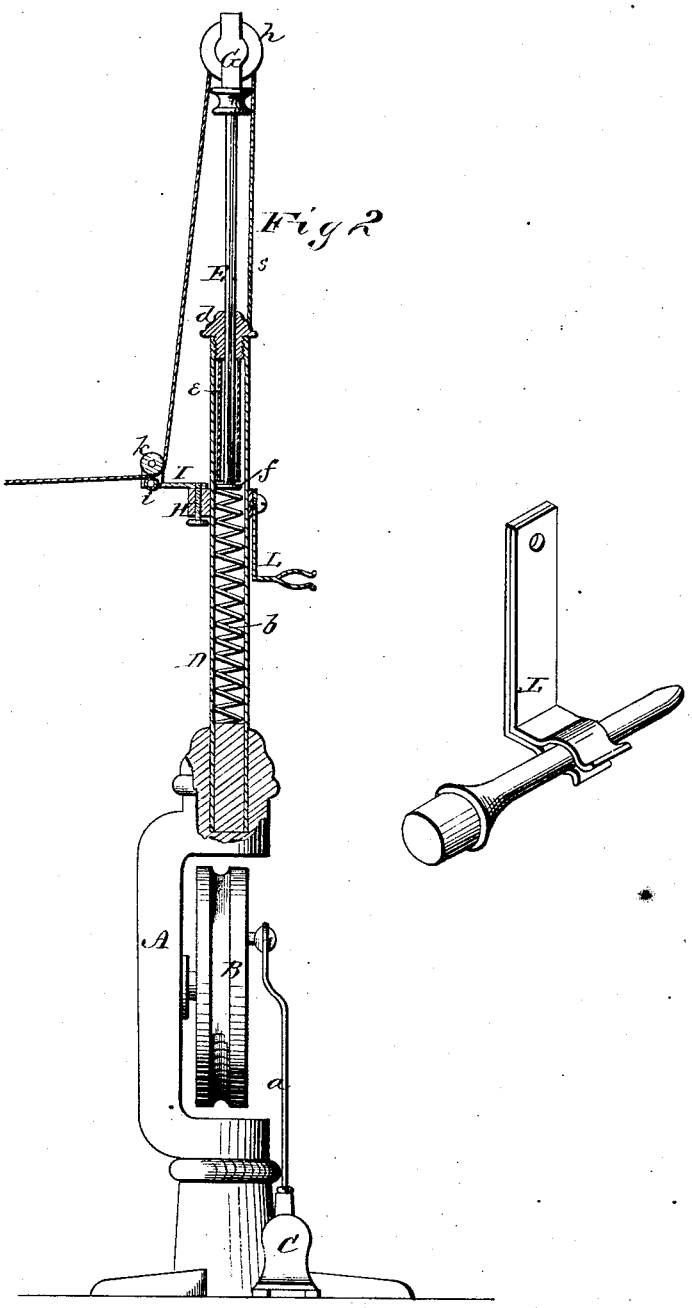

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UNITED STATES PATENT OFFICE.

HORACE M. EDSON AND ROBERT L. EVANS, OF TOLEDO, OHIO.

IMPROVEMENT IN DENTAL ENGINES.

Specification forming part of Letters Patent No. **160,406**, dated March 2, 1875; application filed February 4, 1875.

CASE B.

To all whom it may concern:

Be it known that we, HORACE M. EDSON and ROBERT L. EVANS, of Toledo, in the county of Lucas and in the State of Ohio, have invented certain new and useful Improvements in a Dental Drill and Burring-Machine; and do hereby declare that the following is a full, clear, 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.

Our invention relates to that class of dental engines in which a hollow standard is used inclosing a spring, upon which rests a movable stem having pulleys; and it consists, first, in the combination of the hollow standard, spring, extension-rod, and a single continuous cord or belt, which runs from the driving-wheel over the pulleys on the top of the extension-rod, and thence to the pulleys on the independent hand-piece; second, in combining, with said hollow standard, spring, extension-rod, single continuous cord or belt, and hand-piece, a clamp having a pivoted frame and pulleys, which clamp is secured to the standard, and adjusted up and down thereon; third, in the combination of the several parts, all as more fully hereinafter set forth.

In order to enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a side elevation of our engine, and Fig. 2 is a longitudinal section of the same.

A represents a stand of any suitable construction, containing upon a projecting stud a grooved wheel, B, operated by means of a treadle, C, and connecting-rod, *a*. From the top of the stand A rises a hollow tube, D, in which is placed a spiral spring, *b*. The upper end of the tube D is closed by a screw-plug, *d*, provided at its lower or inner end with a guide-tube, *e*, extending downward into the main tube D for a suitable distance. E represents a vertical shaft, passing through a hole in the plug *d*, and through the guide-tube *e*, its lower end being provided with a cap, *f*, and resting upon the spring *b*. On the upper end of the shaft E is a frame, G, in which are two pulleys, *h h*, placed on the same shaft. On the tube D is secured a clamp, H, on which is pivoted a frame, I, and in said frame are placed two pulleys, *k k*, on the same shaft or axle, with two friction-rollers, *i i*, below them. J represents the hand-piece, through which the shaft *m* passes, said shaft being, at its outer end, provided with any suitable device for holding the drilling-tool, and at its inner end a frame, K, is placed loosely thereon. Within the frame K, on the shaft *m*, is secured a pulley, *p*, and in the frame, on each side of said pulley, are two small pulleys, *n n*. The dental tool is operated by means of an endless cord, *s*, passing around the wheel B, and tightened by the belt-tightener *t*, on the side of the stand A. The two parts of the cord pass around the pulleys *h* on top of the spring-shaft E, from whence they pass under and around the pulleys *k*, and between the pulleys *n*, and around the pulley *p* on the inner end of the hand-piece. The cord or band being continuous, it passes from the treadle-wheel to the hand-piece, through the several pulleys, and is elongated or contracted by the rising or falling of the spring-rod. This continuous cord gives great scope and ease of the hand-piece, allowing the operator to pass around the patient without moving the stand.

By this construction the hand-piece may be carried in any direction from the engine, and the endless cord *s* kept tight by the shaft or rod E, which is forced upward by the spring *b*, thus forming a complete tension-regulating device.

The clamp H may be adjusted up and down on the tube D, and the frame I swinging thereon allows the hand-piece to be operated in any direction. To the clamp H is attached a holder, L, in which the hand-piece is held when the engine is not in use. On the inner end of the hand-piece is a shield, P, to protect the hand from the pulleys.

We are aware that a dental engine having a hollow standard inclosing a spring, upon which is supported an extension-rod having pulleys, and over which the cord from the driving-wheel extends, for the purpose of adjusting the tension or tightening said belt or

cord, is not new. But we are not aware that it has ever before been known in dental engines, where a continuous cord has been employed, which passes from the driving-wheel to the pulleys on the top of a spring extension-rod, and from thence to the independent hand-piece, to allow the operator to handle the hand-piece at any point near or from the standard, or, in other words, that the spring extension-rod acts to draw the hand-piece near to the engine-standard, and allows the hand-piece to be carried from the same by drawing upon it.

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

1. In a dental engine, the hollow stem D, the spring-rod E, and a continuous cord or belt, which runs from the driving-wheel to the hand-piece, in combination with the pulleys and the independent hand-piece, all substantially as and for the purposes herein set forth.

2. In combination with the hollow standard, spring-rod, and continuous cord or belt, an adjustable clamp on the standard, provided with a pivoted frame and pulleys, all substantially as and for the purposes herein set forth.

3. The combination, in a dental engine, of the hollow standard inclosing a spring, an extension-rod having pulleys on its top, the adjusting-pulleys on the standard, the continuous cord or belt, and the independent hand-piece, all substantially as and for the purposes herein set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 12th day of January, 1875.

HORACE M. EDSON.
ROBERT L. EVANS.

Witnesses:
HARVEY SCRIBNER,
GILBERT HARMON.