(No Model.)

A. A. WILCOX.

DENTAL ENGINE.

No. 459,428. Patented Sept. 15, 1891.

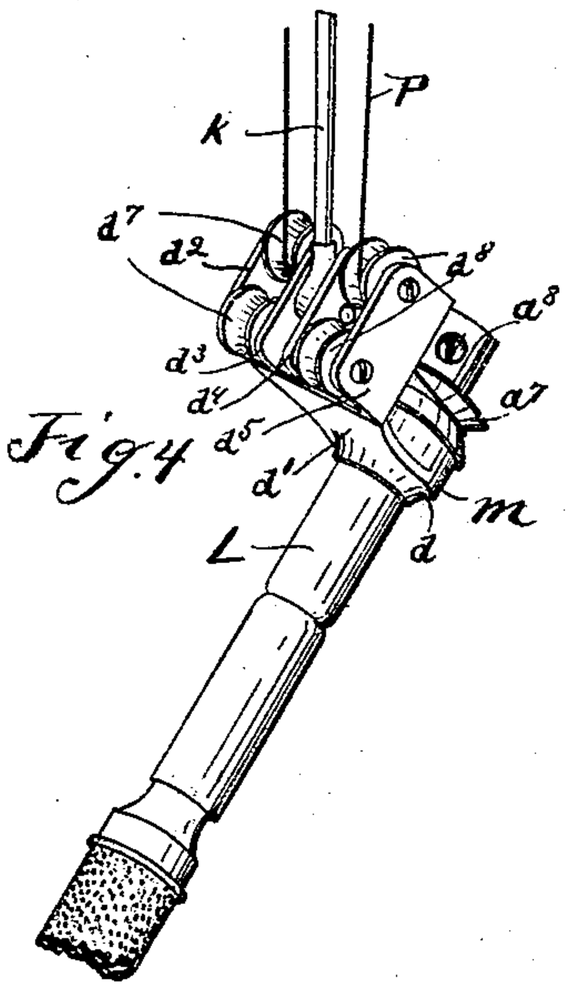


Fig. 4

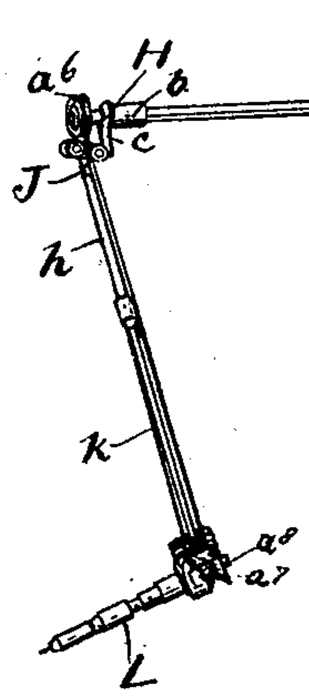
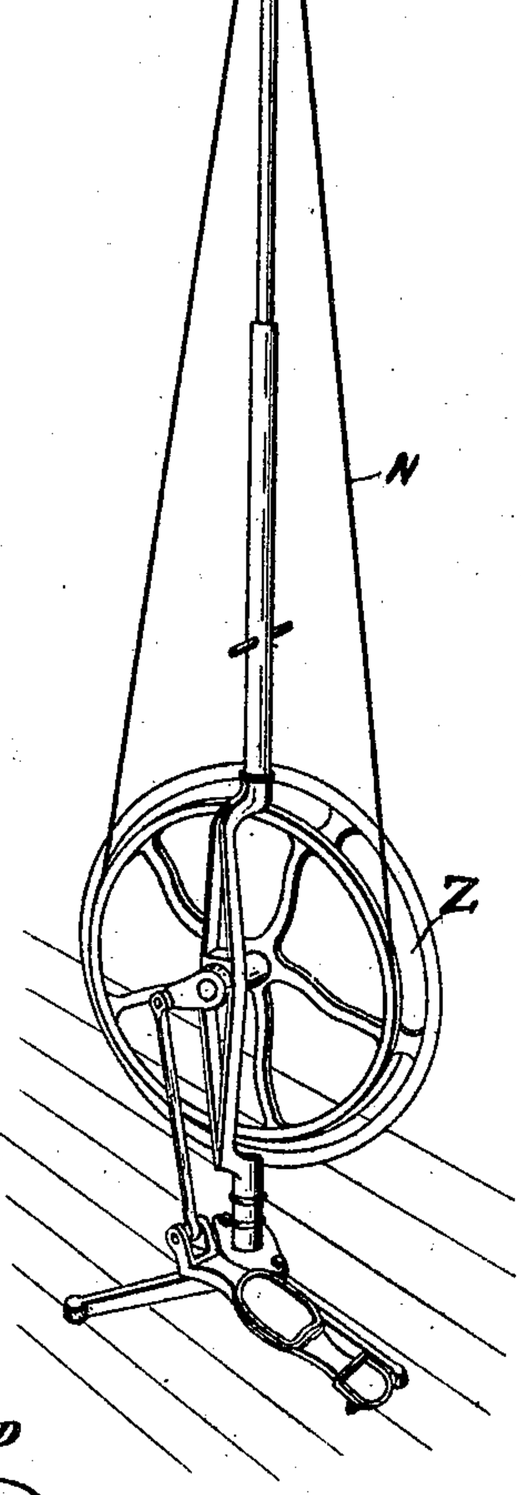


Fig. 1.



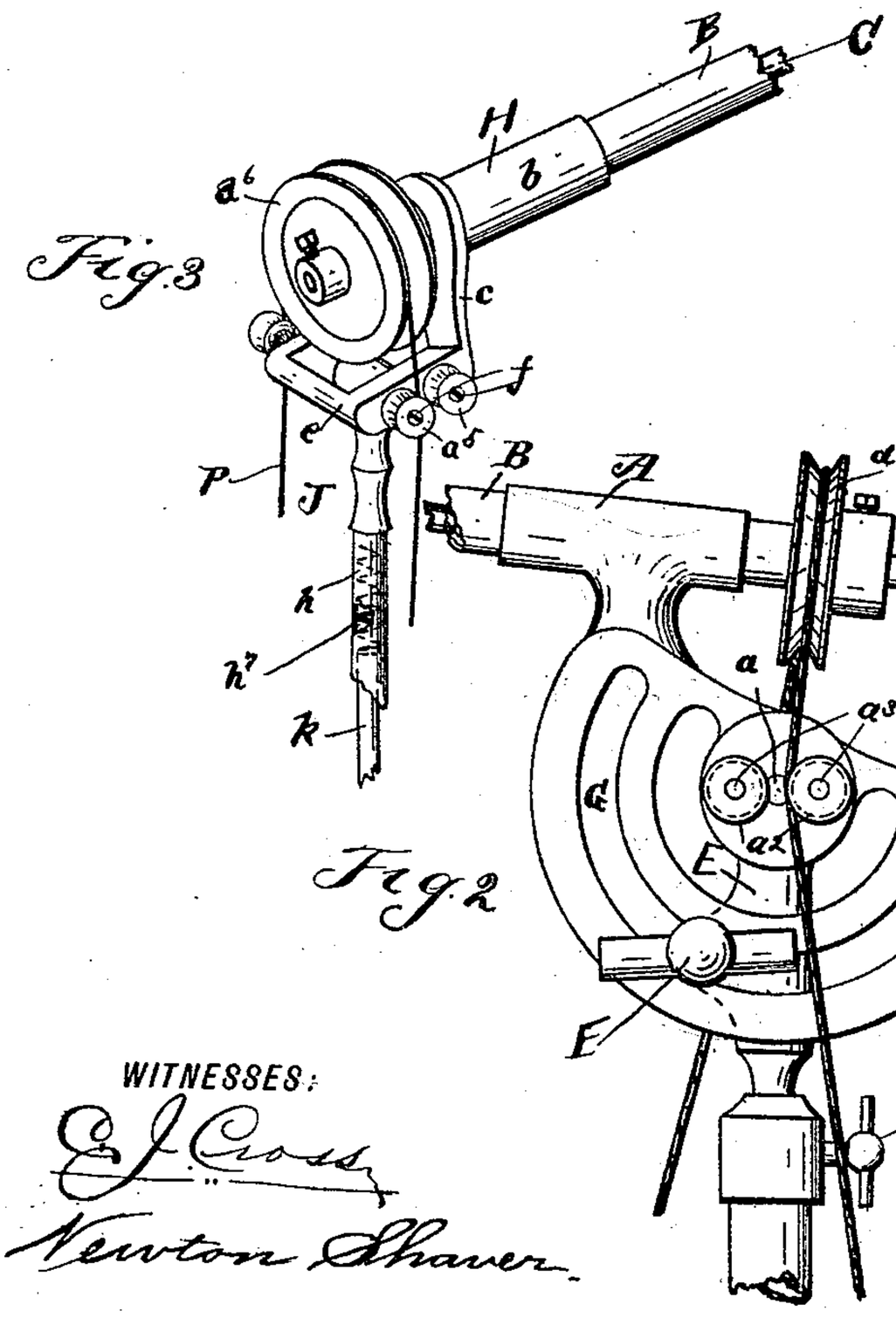


Fig. 3

Fig. 2

WITNESSES:

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UNITED STATES PATENT OFFICE.

AMOS A. WILCOX, OF CLEVELAND, ASSIGNOR TO AARON P. GOULD, JOHN C. SKELTON, AND ALBERT HOEFFER, ALL OF CANTON, OHIO.

DENTAL ENGINE.

SPECIFICATION forming part of Letters Patent No. 459,428, dated September 15, 1891.

Application filed January 5, 1891. Serial No. 376,747. (No model.)

To all whom it may concern:

Be it known that I, AMOS A. WILCOX, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, State of Ohio, 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.

My invention relates to improvements in dental engines; and it consists in certain features of construction and combination of parts, as will be hereinafter described, and pointed out in the claim.

Figure 1 of the accompanying drawings is a view in perspective of a dental engine, illustrating my invention; Fig. 2, a side elevation of swivel and joint and means for securing the adjustable arm in desired adjustment; Fig. 3, a perspective of an end portion of the adjustable arm, the swinging arm, and swiveled mule-pulleys; Fig. 4, a similar view of outer end of the swinging arm and the hand-piece and mule-pulleys.

Similar letters of reference indicate corresponding parts in all of the figures of the drawings.

The pedal-wheel Z and vertical staff or support Y are similar to other and well-known dental engines, and will not need a further description for the purposes of this case.

A represents a sleeve or pipe coupling in which is secured a pipe portion B, in which is journaled a shaft C, said coupling having a segmental portion D, which is pivotally secured to the top portion of the support E, as shown at *a* in Fig. 2, said parts forming a laterally-projected arm. To secure said parts in desired adjustment with the support E, a slot G is provided, as shown, through which is passed a thumb-screw F, which is turned into the neck E, the screw-head having shoulders to engage the edges of the slot G, by which the arm B may be secured in desired adjustment. On the sides of the segment D, diametrically opposite the pivot *a*, is provided small sheave-wheels a^2, loosely mounted on stud-pins a^3, said wheels serving as mule-pulleys to the sheave-wheel a^4 on the inner end of the shaft C. On the outer end of the pipe portion B is swiveled a frame portion H, comprising a sleeve *b* and arm portion *c* at a right angle with said sleeve, and a yoke portion *e*, extending from the arm *c* past the face of the sheave a^6 and parallel with the sleeve *b*, the sleeve to rotate about the pipe forming the arm B. At the sides of the yoke portion of the frame H are provided two small sheave-wheels a^5, turning loosely on pins *f*, secured to the side of the yoke, as shown, forming mule-pulleys to the sheave a^6 on the outer end of the shaft C, and in the yoke is pivotaly secured the head portion of a swinging arm J, said arm having a hollow or pipe portion *h*, in which is placed a coil-spring *h'*, against which is placed the outer stem portion *k* of the swinging arm J, said spring serving to force the stem *k* out of the pipe portion *h* for the purpose of keeping the driving-belt taut on the sheave a^6 on the shaft C, and a similar sheave a^7 on the tool-chuck spindle a^8. At the upper end portion of the spindle-sheath or hand-piece L is secured a frame portion M, comprising a thimble portion *d*, an outwardly-projected arm portion *d'*, having wing portions d^2, d^3, d^4, and d^5 projected therefrom at right angles to said arm and parallel with the hand-piece L, the wings d^2 and d^3 serving to support the small sheave-wheels d^7 and the wings d^4 and d^5 to support similar wheels d^8, thus forming a double set of mule-pulleys to the sheave-wheels a^7. The head portion of the stem *k* is pivotally secured to and between the wings d^3 and d^4. The band N is placed about the pedal-wheel Z and up between the sheave a^2 and over the sheave a^4 on the inner end of the shaft C, and the band P is placed about the sheave a^6 on the outer end of the shaft C and a similar sheave a^7 on the spindle a^8. To tighten the band N, the neck E is raised up and secured in adjustment by the thumb-screw F.

The object sought by this invention is to provide a duplex-belt engine having a driving-shaft adapted to be supported over or about a patient in a dental chair, having at its outer end portion an arm adapted to swing in all directions and a dental tool-holder or hand-piece pivotally secured at the outer end thereof adapted to support a tool-chuck and spindle having a belt connection with the shaft C, by which said dental tool may be rotated,

said tool-holder adapted for a free and easy movement in all directions to adapt the dental tool to any and all positions necessary in the use of such tools in the practice of dentistry.

Having thus fully described the nature and object of my invention, what I claim, and desire to secure by Letters Patent, is—

In a dental engine, the combination, with a support, a drive-wheel journaled thereto, a pipe portion B, having a swinging adjustment with the support, a shaft C, journaled in said pipe portion and provided at the ends with sheaves a^4 a^6, an arm J, having a swinging connection with the pipe portion B, a hand-piece L, having journaled therein a tool-chuck spindle provided at its inner end with a sheave a^7, means for connecting the arm J to the tool-chuck spindle, a belt N, rove around the drive-pulley and the sheave a^4, and a belt P, rove around the sheaves a^6 a^7.

In testimony whereof I have hereunto set my hand this 17th day of December, A. D. 1890.

AMOS A. WILCOX.

Witnesses:
J. D. SLATER,
R. H. CUTTER.