(No Model.) 2 Sheets—Sheet 1.

C. H. RICHARDSON.

DENTAL ENGINE.

No. 539,645. Patented May 21, 1895.

FIG. 3.

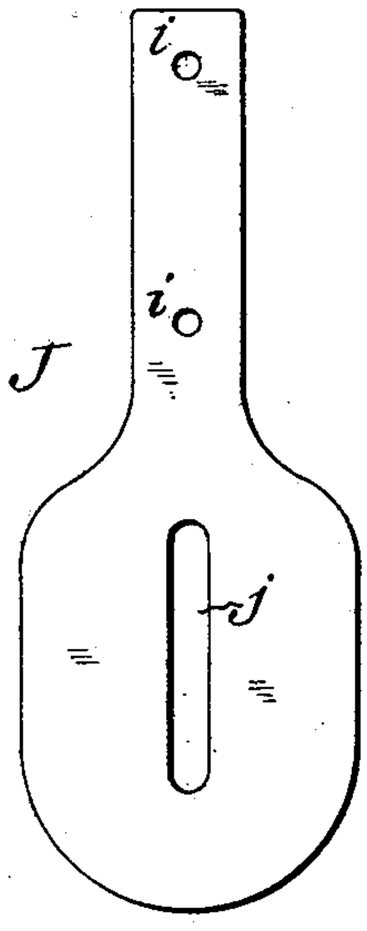
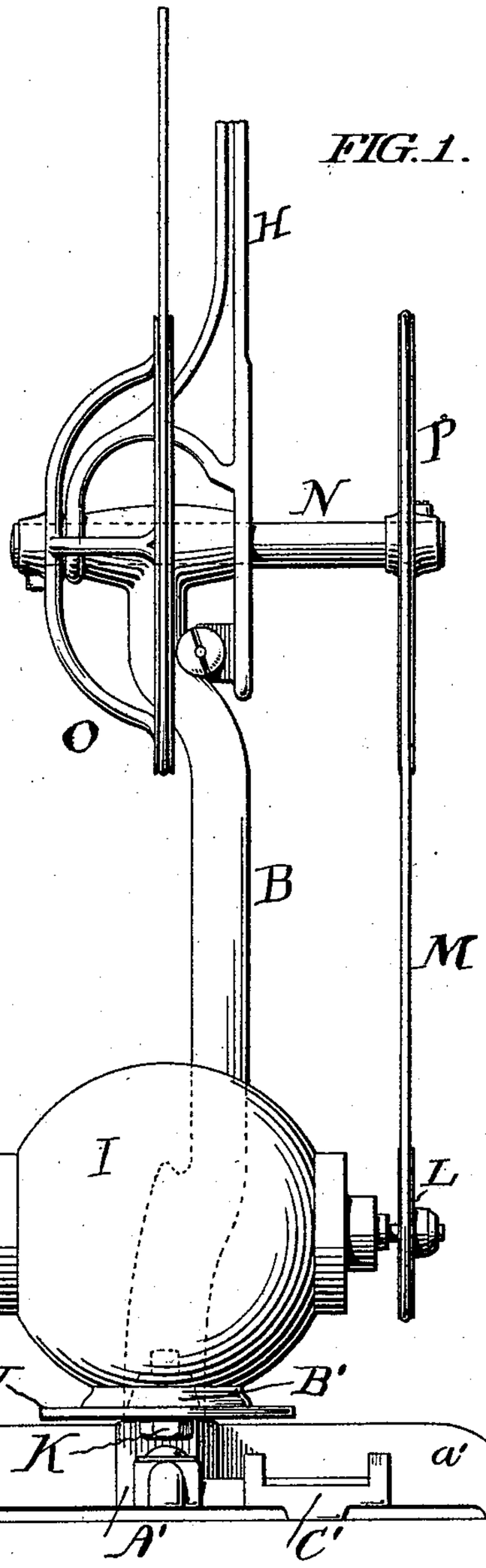


FIG. 1.



WITNESSES:

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By Atty J. C. Clayton.

(No Model.) 2 Sheets—Sheet 2.

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No. 539,645. Patented May 21, 1895.

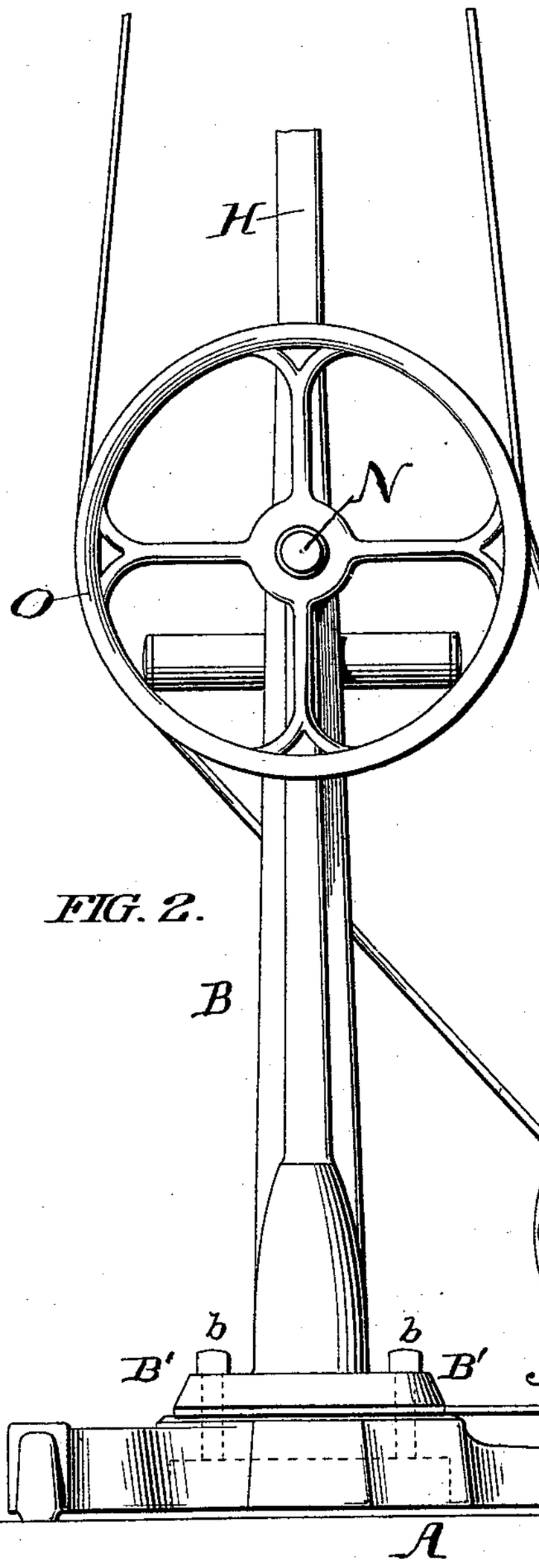

FIG. 2.

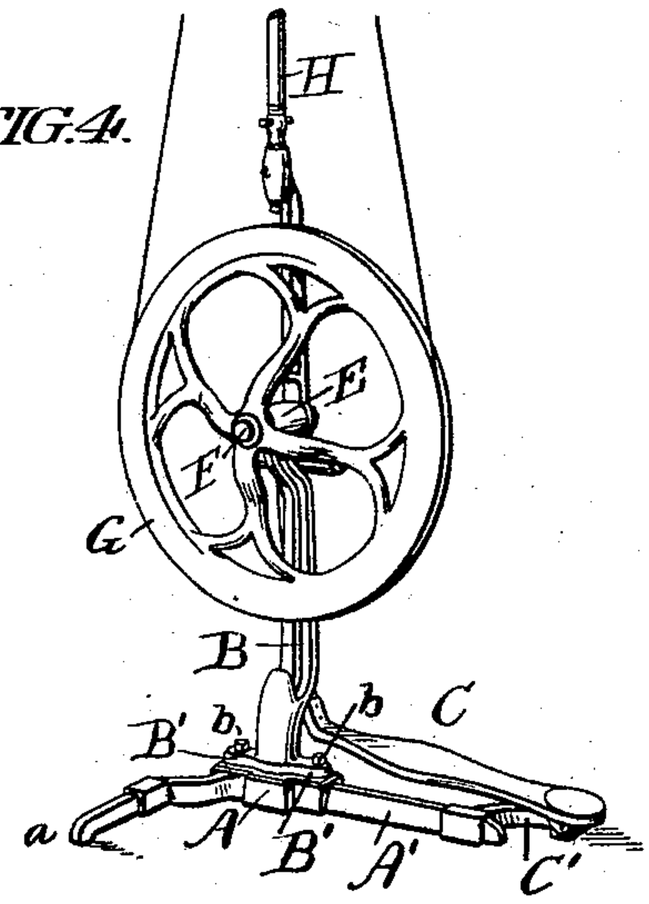

FIG. 4.

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UNITED STATES PATENT OFFICE.

CHARLES H. RICHARDSON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE S. S. WHITE DENTAL MANUFACTURING COMPANY, OF SAME PLACE.

DENTAL ENGINE.

SPECIFICATION forming part of Letters Patent No. 539,645, dated May 21, 1895.

Application filed June 9, 1894. Serial No. 514,030. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. RICHARDSON, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Dental Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain improvements, as hereinafter claimed, by which a dental engine is adapted to be actuated either by way of a treadle, or by an electric motor, as desired.

In the accompanying drawings, Figures 1 and 2 are views in elevation, the one at a right angle with the other, of portions of a suitable dental engine with an electric motor by which it is operated. Fig. 3 is a plan view of the motor carrier or support. Fig. 4 is a view in perspective, on a reduced scale, showing the engine in part, with the treadle for actuating it by foot, as usual.

The drawings show my improvements as applied to a dental engine such in general features of construction as set forth in United States Letters Patent No. 460,687, dated October 6, 1891.

The engine-frame or supporting stand is made (substantially as fully described in said patent) in separable sections consisting of the base A having three arms or branches A′, *a a′*, and a side-recessed standard B provided with lateral projections B′ B′ at its lower end by way of which to connect it with the base by the screw bolts *b b*, passing through the frame-standard projections B′ B′ and engaging screw-holes in the base. The two parts of the frame may readily be separated when desired, it will be seen. When the foot treadle C (see Fig. 4) for actuating the engine is employed it is pivoted at its heel to the side extension or bracket C′ of the arm A′ of the frame base; and the journal-bearing E at the upper end of the frame standard B, and the driving shaft F projecting therefrom at both ends, and provided with a crank at one end and having the driving wheel G detachably secured to its other end, are as fully explained in said Patent No. 460,867, while a suitable pitman connects the toe of the actuating treadle with the cranked driving shaft. The engine standard H is mounted to rock about the driving shaft. Details of construction of this rocking standard H and various other features needed to complete the dental engine need no description here.

When, in accordance with my improvements, an electric motor I is to be employed, instead of a treadle, for actuating the engine, a carrier or support J, preferably yielding or springy, is secured by the bolts *b b* to the engine frame, this carrier being thus detachably secured in position between the projections B′ B′ of the frame standard and the upper surface of the frame base A, as plainly shown. A slot *j* in the motor carrier and extending longitudinally thereof, through which an adjusting bolt or screw K passes and engages the motor frame, provides for detachably and adjustably securing the motor in position upon its carrier. A pulley L on the motor armature shaft serves to impart motion to a driving cord or belt M for actuating the driving wheel of the engine. The before mentioned driving wheel, cranked driving shaft, pitman and treadle (see Fig. 4) are detached and in place thereof a long driving shaft N is employed with a driving wheel O, and a pulley P is secured to the driving shaft over the pulley L and the driving cord M passes about this pulley P. It will of course be understood that the driving wheel O is made fast to the shaft N in suitable way.

From the above description it will be seen that the engine can readily be changed from a treadle-driven to a motor-driven engine, and vice versa; that the holes *i i* in the motor carrier being adapted to register with the threaded holes in the frame base for the bolts *b b*, there is nothing to be done in making the change from a treadle-actuated to a motor-actuated engine except to simply remove the treadle and its connections and substitute the motor and its connections, no drilling or special fitting being needed.

By means of the slot in the motor carrier and the motor securing screw the motor may be readily adjusted toward or from the frame standard, and the driving belt kept properly taut. By making the motor carrier of proper metal and thin enough it is rendered springy or yielding so as to materially lessen the jarring of the engine and the noise arising from the rapid vibration of the motor when running.

I claim as my invention—

1. The combination, in a dental engine, of the sectional frame consisting of the standard and base detachably bolted together, and the motor carrier secured to the frame by the bolts connecting said standard and base, substantially as and for the purpose set forth.

2. The combination, of the sectional frame consisting of the standard and base detachably bolted together, the motor carrier secured to the frame by the bolts connecting said standard and base, the electric motor, the pulley on its armature shaft, the driving cord, the driving wheel, its shaft and the pulley thereon about which the driving cord passes, substantially as set forth.

3. The combination of the dental engine frame, the yielding or springy motor carrier detachably connected to said frame, the motor mounted upon said carrier, and means by which motion is imparted to the driving wheel of the engine from the motor, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES H. RICHARDSON.

Witnesses:

R. DALE SPARHAWK,

EDW. F. SIMPSON, Jr.