

(No Model.)

2 Sheets—Sheet 1.

A. WEBER.
DENTAL ENGINE.

No. 356,809.

Patented Feb. 1, 1887.

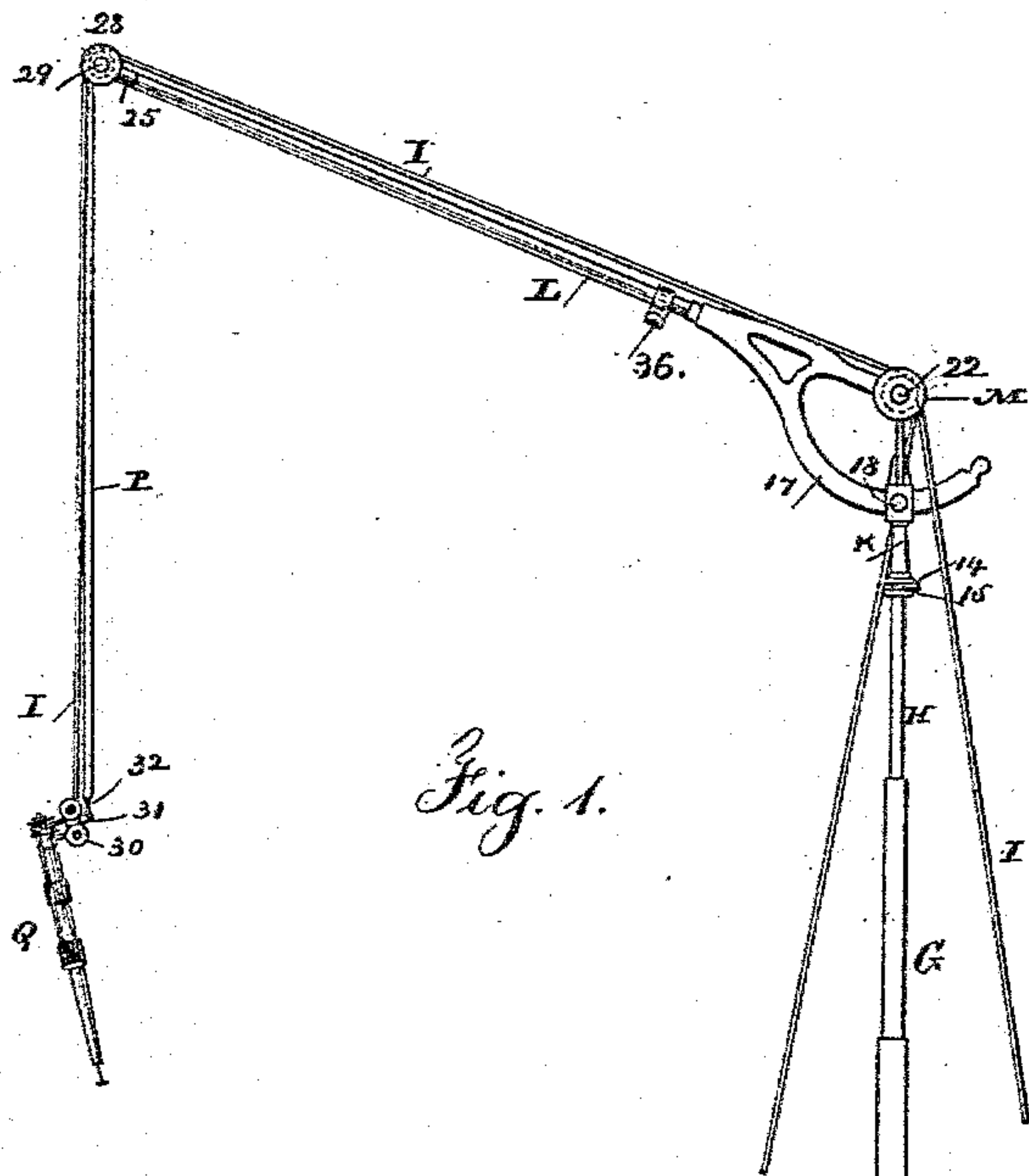


Fig. 1.

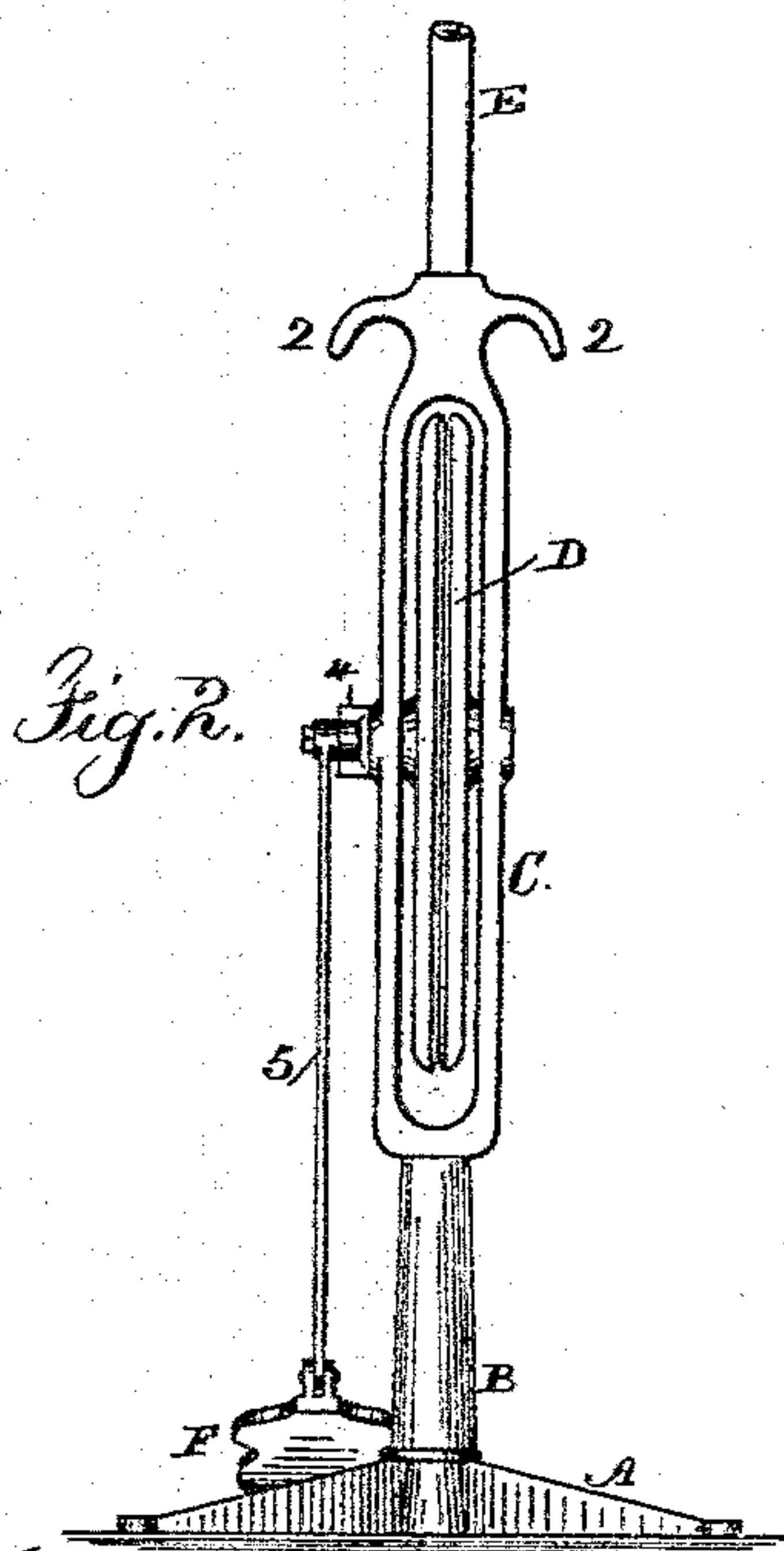
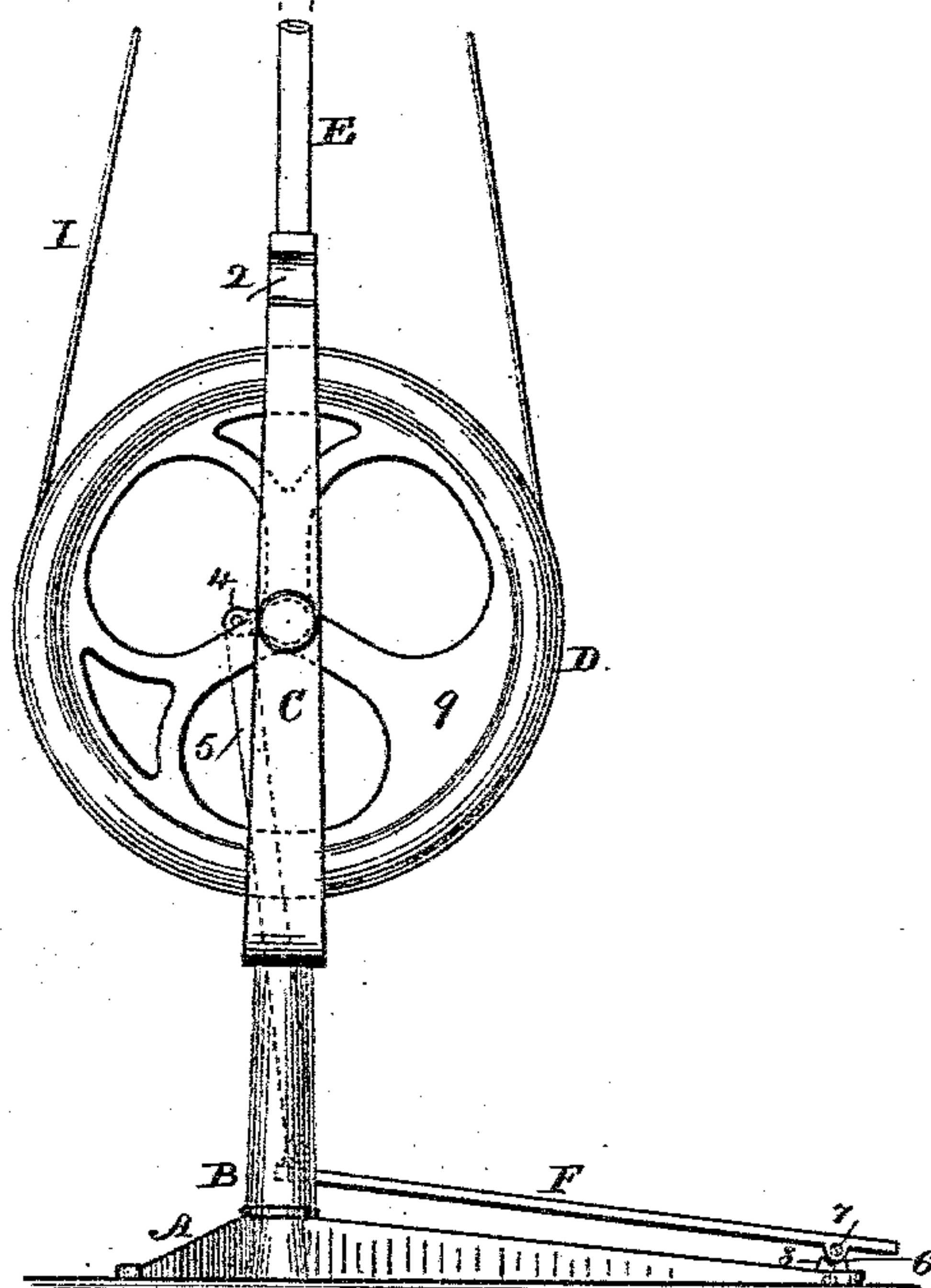


Fig. 2.



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Inventor
August Weber
per Lemuel W. Ferrell atty.

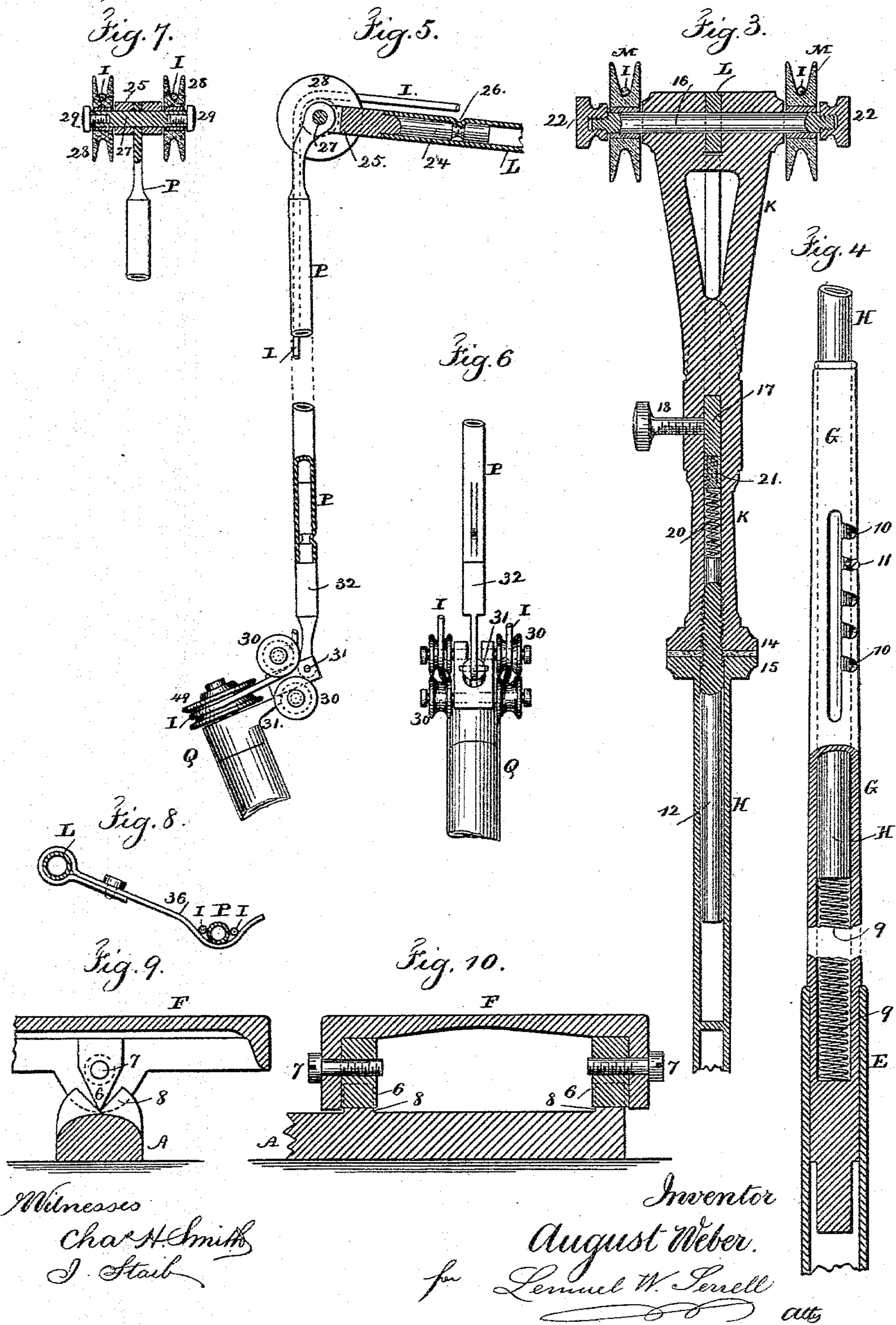
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Inventor
August Weber.
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att

UNITED STATES PATENT OFFICE.

AUGUST WEBER, OF NEW YORK, N. Y.

DENTAL ENGINE.

SPECIFICATION forming part of Letters Patent No. 356,309, dated February 1, 1887.

Application filed June 9, 1886. Serial No. 204,569. (No model.)

To all whom it may concern:

Be it known that I, AUGUST WEBER, of the city and State of New York, have invented an Improvement in Dental Engines, of which
5 the following is a specification.

This invention relates to that class of dental engines in which the hand-piece, plugger, or other tool is at the end of a radius-bar and is driven by an endless belt passing around a
10 pulley.

My present improvements are made for simplifying the construction of the parts and for increasing their efficiency and for maintaining the tension of the belt without straining
15 the same unnecessarily.

In the drawings, Figure 1 is an elevation of the engine with part of the standard removed. Fig. 2 is an elevation of the fly-wheel and base at right angles to Fig. 1. Fig. 3 is a vertical section at the upper part of the standard. Fig. 4 is a detached elevation and partial section of the exterior tube of the standard at the upper part. Fig. 5 is a side elevation showing the pulley at the end of the hand-
25 piece and the joints at the ends of the radius-bar. Fig. 6 is an elevation of the pulleys upon the hand-piece at right angles to Fig. 5. Fig. 7 is a section of the pulleys at the joint of the radius-bars. Fig. 8 is a section of one
30 of the radius-bars and an elevation of the supporting-arm for the second radius-bar. Fig. 9 is a side view of the treadle-fulcrum and section of the treadle and base, and Fig. 10 is a section at right angles to Fig. 9.

The base or foot A is usually made of three arms extending out from the bottom B of the standard, and at C the standard is made double to receive between the two side bars of the stand-
40 the fly-wheel D, and upon the top of the portion C is the tubular standard that carries the other parts of the dental engine. I prefer to provide the hooks 2 2 at the upper part, C, of the standard to facilitate the removal of the standard and base from one place to another
45 by passing the fingers beneath these hooks 2 when grasping the standard.

Upon the shaft of the fly-wheel is a crank, 4, and connecting rod 5 to the treadle F. Usually this treadle is connected to the foot A by
50 pivot-screws; but these are liable to be bent by the pressure of the foot, and they quickly wear unless frequently oiled. To avoid these

difficulties I make use of the knife-edged pivots 6 upon the under side of the treadle F. These are preferably of steel, attached by the
55 screw 7, and upon the base A are the open V-shaped bearings 8 for the knife-edged pivots. These are easily kept clean, and there is very little wear upon them and they do not need to be oiled.

The fly-wheel D is weighted at one side, as at 9, so that the crank 4 may occupy the proper position for starting when the parts are at rest. The tubular standard E is a fixture, and into the top of the same is passed the bottom
65 of the tubular extension G, that allows the parts of the standard to be separated for transportation.

Within the tubular extension G is a sliding tube, H, that is acted upon by a spring, 9, to
70 raise the said tube H and maintain the proper tension upon the belt I; but to prevent the tension being too great I slot the tube G, as seen in Fig. 4, and provide lateral branch slots 10, so that the screw 11, that is passed into the
75 tube H, can be turned into either of these branch slots when the proper tension is given to the belt.

The pivot-pin 12 is screwed into the head-piece K, and passes freely into the upper end
80 of the tube H, so that said head-piece and the radius-bars pivoted thereto can be turned around upon the pivot-pin 12 into any desired position, and there are bearing-disks 14 15 at the bottom end of the head-piece K and up-
85 per end of the tube H, respectively, with a disk of leather between them for producing a uniformity of frictional contact to prevent the head-piece and radius-bars swinging too freely.

The upper end of the head-piece K is forked,
90 and through it passes the pivot-pin 16, that connects the first radius-bar, L, to such head-piece, and there is a sector, 17, extending down from the first radius-bar, and passing through a slot in head-piece K, and this sector-bar
95 may be clamped by the screw 18 whenever the radius-bar has been moved to the desired position in which it may require to be fixed; but usually the sector is permitted to move through the slot in the head-piece K, and a friction is
100 applied to the edge of the sector by means of a spring, 20, within the head-piece K and in line with the pivot-pin 12, and this pivot-pin may be screwed into the head-piece K to com-

press the spring more or less, and it is preferable to apply a piece of leather, 21, between the spring 20 and the edge of the sector 17.

The pulleys M, over which the belt I passes, are upon the ends of the pivot-pin 16, and they are held in place by the nuts 22, screwed upon the ends of such pivot-pin.

The first radius-bar, L, beyond the sector 17, is preferably tubular, and into its open end is received the pin 24 of the joint-piece 25, and this tubular radius-bar is split longitudinally and indented, as at 26, to form a spring, and the pin 24 is formed with a neck, as seen in Fig. 5, so that the pin may be pushed into or pulled out of the radius-bar L, and the indented spring portion will serve as a detainer, to prevent the parts separating too easily; but at the same time the joint-piece 25 can be turned around freely within the end of the radius-bar to whatever extent is necessary.

The joint 25 is forked at the end and has through it a pin, 27, and this pin passes through the back end of the second radius-bar, P, and 28 are pulleys around the projecting ends of the pin 27, and 29 are screws to hold the pulleys in place. The endless belt I passes also over these pulleys 28.

At the end of the radius-bar P a hand-piece having a drill or other tool or dental plugger is connected, as at Q. This hand-piece, however, does not form any necessary part of my invention, but is introduced to illustrate the tool with which my improved dental engine may be used.

49 is the driving-pulley for the tool, and 30 the guide-pulleys for the endless belt I. At 31 the stock of the hand-piece is jointed to the pivotal pin 32, that enters the open end of the second radius-bar, P, and upon which pivotal pin the hand-piece may be turned around into any desired position without becoming detached from the radius-bar. The tube of the radius-bar is slotted and indented, as seen in Fig. 6, for holding the pivotal pin 32 within the end of the radius-bar, and for allowing the parts to be separated by pulling upon the pivotal pin with the necessary force.

My dental engine is easily constructed, cheap, simple, durable, and efficient, and it is to be understood that the jointed radius-bars can be turned into any desired position relatively to each other and incline more or less and swung around upon the tubular standard, so as to accommodate the various positions in which the hand-piece may be placed when performing the work required of the tool or plugger.

The finger 36 is made of sheet metal, bent up at one end to form an eye that surrounds the first radius-bar, L, near the sector 17, and it extends out at one side, as seen in Fig. 8, and terminates as a hook, so that the second radius-bar, P, and the adjacent portions of the endless belt I may be laid into the recess of the hook, so as to support the hand-piece when not in use and to allow the same to be speedily lifted out and set in operation.

I claim as my invention—

1. The combination, in a dental engine, of the tubular standard E, the tubular extension G, sliding tube H, spring 9, and the screw 11, received into one of the branches of the longitudinal slot in the tubular extension, substantially as set forth.

2. The head-piece K, the radius-bar L, and the pivot-pin 16, in combination with the sector 17, spring 20, friction-block 21, and pivot-pin 12, having a screw that serves also to vary the pressure of the spring, substantially as set forth.

3. The combination, in a dental engine, of a tubular standard, a head-piece and pivot-pin for the same, two radius-bars connected together, pulleys upon the pivot-pins of the respective joints, an endless driving-belt passing around the fly-wheel and over the respective pulleys, and a joint-pin, 25, passing into the open tubular end of the first radius-bar for allowing the second radius-bar to be swung upon such joint-pin in adjusting the radius-bars to the proper positions when operating the tool of the hand-piece, substantially as set forth.

4. The tubular radius-bars slotted longitudinally and indented, in combination with the joint-pins having necks upon them and adapted to be inserted into the open tubular ends of the respective radius-bars and held therein by the indentation of the spring, substantially as set forth.

5. The combination, with the radius-bars hinged together and the respective pulleys and driving-belt, of the supporting-finger clamped upon the first radius-bar and having a hooked-shaped end for receiving the second radius-bar, substantially as set forth.

Signed by me this 4th day of June, A. D. 1886.

AUGUST WEBER.

Witnesses:

GEO. T. PINCKNEY,
WILLIAM G. MOTT.