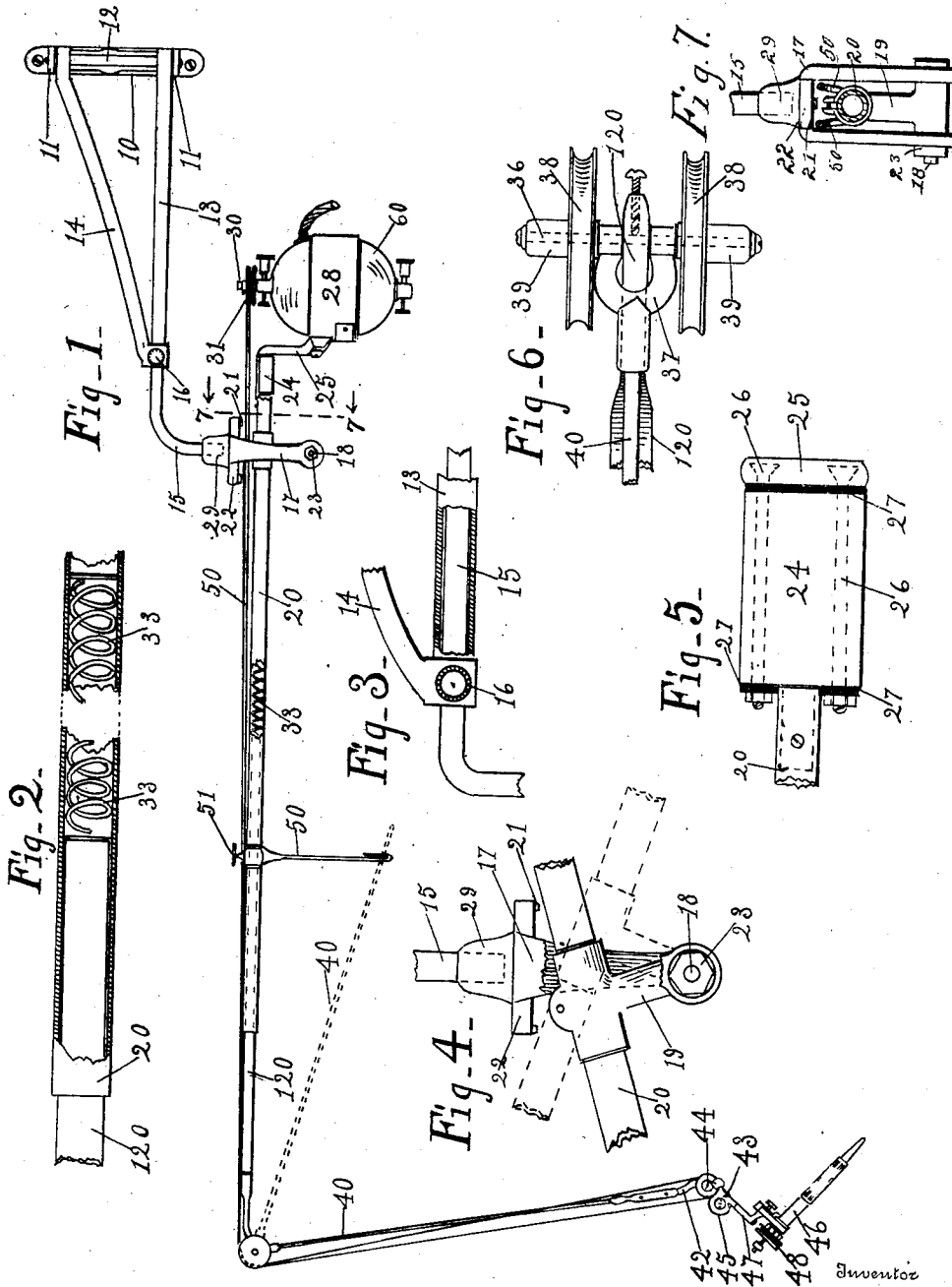


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PATENTED AUG. 28, 1906

N. K. GARHART.
DENTAL ENGINE.
APPLICATION FILED MAY 25, 1905.



Witness
Claude Hoer.
N. Allenmy

Nathan K. Garhart
By J. H. Lockwood
Attorney

UNITED STATES PATENT OFFICE.

NATHAN K. GARHART, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO
GARHART DENTAL MANUFACTURING COMPANY, OF INDIAN-
APOLIS, INDIANA, A CORPORATION OF INDIANA.

DENTAL ENGINE.

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To all whom it may concern:

Be it known that I, NATHAN K. GARHART, of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Dental Engine; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like numerals refer to like parts.

The object of this invention is to provide some new and valuable features in dental engines.

One feature consists in mounting the engine on an overhead bracket and providing a horizontally-disposed bar fulcrumed between its ends to said bracket and adapted to carry a motor at one end and at the other end having means for carrying the handpiece. Also in this connection means is provided for tightening the fulcrum of said rod, so that the same will not move suddenly, but with deliberation. Where the plugger or other dental tool is driven from the motor by a cord or the like running over pulleys, another feature of improvement consists in making said horizontally-disposed rod telescopically extensible and providing a spring tending to lengthen it, so as to maintain said cord or cable taut on the pulleys.

These and the various other features of the invention will be understood from the accompanying drawings and the following description and claims.

In the drawings, Figure 1 is a side elevation of a dental engine with a part broken away. Fig. 2 is a central longitudinal section of a portion of the horizontal rod that carries the horizontal lever. Fig. 3 is a side elevation of a portion of the bracket, parts being broken away to show that the same is telescopic. Fig. 4 is a side elevation of a horizontal lever and its support at the fulcrum-point, parts being broken away and the alternated position of said lever being shown by dotted lines. Fig. 5 is a plan view of the horizontal lever next to the motor, the remaining part being broken away. Fig. 6 is a bottom view looking upward of the extreme end of said horizontal lever at the point farthest from the motor, the rod supporting the dental plugger or tool being folded up under

and against said horizontal lever and parts being broken away. Fig. 7 is a section on the line 7 7 of Fig. 1.

Referring now to the details of the drawings herein shown for the purpose of explaining the general nature of my invention, 10 represents a bar secured vertically to the wall, window-casing, or other part of the room. It has a pair of outwardly-extending horizontal ears 11, in which a rod 12 is pivoted. On this vertical rod 12 a bracket formed of a hollow horizontal portion 13 and an oblique brace 14 is secured. In the hollow or horizontal portion 13 of said bracket an arm 15 telescopes, as shown in Fig. 3, and is locked or held in any desired position by a thumb-screw 16, that extends through the side of the bracket and impinges on the arm 15. The outer end of the arm is curved downward, and a circular head 29 is swiveled thereto, said head carrying two oppositely-placed bearing-arms 17, secured thereto. A fulcrum-pin 18 is mounted in the lower ends of said bearing or fulcrum arms, on which is pivotally mounted a post 19, that is secured to a horizontal lever 20. The vertical oscillations of said lever 20 are limited by stops 21 on the plate 22, secured to the head 29. (Seen in Fig. 4.) Each end of the pivot-pin 18 has a nut 23 thereon, whereby the bearing-post 19 is tightened frictionally between the fulcrum-arms 17, so that the horizontal lever 20 will not move suddenly, but will have a certain steadiness in its movement or operation. The short end of said horizontal lever 20, as seen in Fig. 5, has secured to it a widened plate 24, to which a hanger 25 is fastened by the bolts 26. Insulation 27 is placed between the parts, so as to insulate the hanger 25 completely from said horizontal lever. A motor 28 is secured to the lower end of said hanger 25. The shaft 30 of the motor is vertical and extends above the casing thereof and has upon its upper end the horizontal pulley 31.

The horizontal lever consists of two parts as an entirety, the main portion 20 being hollow, and within it the rod 120 telescopes and is pressed outward by the spiral spring 33, that is coiled within the lever 20. The tendency of this spring is to push the rod 120

outward. The outer end of said rod 120 is reduced and curved downward and carries a pin 36, (shown in dotted lines in Fig. 6,) on which a yoke 37 is pivotally mounted, and outside of said yoke pulleys 38 are placed and held in place by sleeve-like washers 39.

From the yoke 37 a relatively small rod 40 is suspended. At the lower end of this small rod an arm or extension 42 is swiveled. To the extreme end of said arm or extension 42 a bar 43 is hinged, and at the elbow-joint between said parts 42 and 43 there is a pulley 44, and there is also a pulley 45 secured to the bar 43 on the side opposite to the pulley 44, so that these pulleys are practically on opposite sides of the bar 43. The handpiece 46 is secured to an arm 47, that is swiveled to the bar 43. On the handpiece there is a pulley 48. A driving cord or cable 50 runs from the pulley 31 of the motor between the bearing-arms 17, over the two pulleys 38, and thence down over the two pulleys 44 and 45, and thence around the pulley 48. In this way the dental instrument is driven. Said cord is kept taut by the spring 33, that pushes the rod 120 outward.

In operating said device it is hung on the wall above the level of the operator's head, and the lever 20 extends out over the dental chair and the handpiece is suspended from the outer end of said lever, so that the operator can conveniently handle it, and to this end said lever 20 is practically balanced, the motor end, however, being slightly heavier than the other end, so that it will easily tilt

into any position vertically and will swing readily about.

For the purpose of holding the rod 40 and the handpiece up out of the way a hook 500 is mounted adjustably on the lever 20 and is held in place by a set-screw 51, and the rod 40 is elevated and caught on said hook.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a dental engine, a bearing-frame, a lever fulcrumed therein, a motor mounted at one end of said lever, a handpiece, means carrying the handpiece pivoted at the other end of said lever, said lever being fulcrumed so as to be substantially balanced, and stops in connection with said bearing-frame for limiting the tilting movement of said lever in either direction.

2. In a dental engine, a bearing-frame having two downwardly-extending parallel arms, a pivot-pin mounted in said arms, nuts on the ends of said pivot-pin, a bearing-post pivoted on said pin between said arms, a lever secured to said bearing-post, a motor on one end of said lever, a handpiece, and means for supporting the same pivotally connected with the other end of said lever.

In witness whereof I have hereunto affixed my signature in the presence of the witnesses herein named.

NATHAN K. GARHART.

Witnesses:

W. H. BONHAM,
N. ALLEMONG.