(No Model.)

F. H. BERRY.

DENTAL ENGINE.

No. 516,465. Patented Mar. 13, 1894.

Fig. 1.

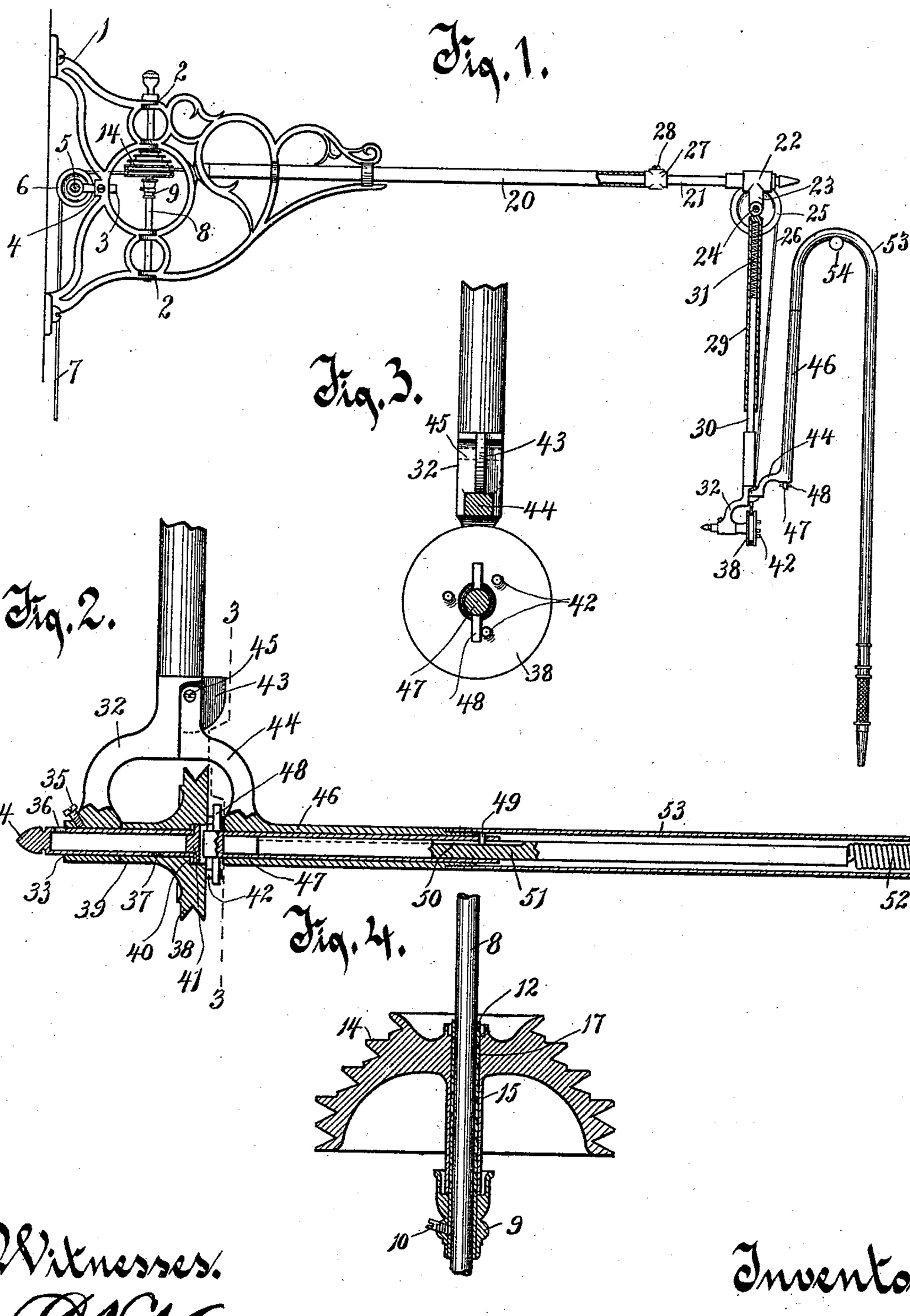

Fig. 3.

Fig. 2.

Fig. 4.

Witnesses.

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DENTAL ENGINE.

SPECIFICATION forming part of Letters Patent No. 516,465, dated March 13, 1894.

Application filed June 21, 1893. Serial No. 478,367. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK H. BERRY, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Dental Engines, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention has relation to improvements in brackets for dental engines, and it consists more particularly in certain improvements upon the device covered by Letters Patent issued to me under date of January 3, 1893, and numbered 489,117.

In the patent above referred to, a rotatable vertical shaft is shown and described, which carries fixedly thereon a cone pulley, around which the belt running from the source of power passes. The cone pulley, therefore, rotates with and is immovably affixed to the vertical shaft.

In my present improvement, it is an object to secure an adjustment of the cone pulley, so that it may be set at different points upon the vertical shaft. With this in view, I provide a non-rotatable vertical shaft, in connection with adjusting mechanism, which supports the pulley wheel rotatably, and also provides for its adjustment.

A further object contemplated is the provision of means whereby the flexible power conveyer is prevented from being rotated, when the engine is not in use, through the accidental starting of the motor.

The invention still further contemplates other incidental objects which will appear more fully hereinafter.

In the accompanying drawings, Figure 1, is a side elevation of a complete bracket, the depending radius bar being shown in section to disclose interior parts, and the flexible power conveyer thrown out of clutch. Fig. 2, is a longitudinal sectional view through the lower portion of the machine, when the flexible power conveyer is in clutch for operation. Fig. 3, is a transverse, vertical section on the line 3—3 of Fig. 2, and Fig. 4, is a vertical section through the cone pulley, showing the means for obtaining the vertical adjustment of the cone-pulley.

Like numerals of reference denote like parts throughout the several views.

Referring to the drawings, the numeral 1 indicates a scroll bracket of the peculiar conformation clearly shown. This bracket is secured to the wall, or other support, and consists of two sections hinged together at the points 2. The formation of the meeting edges of the two sections is such that a central ring is provided, and this ring at one point of its circumference is apertured. Through the aperture passes an arm 3, adjustable by means of a set-screw 4. Through the outer end of arm 3 passes a transverse shaft 5, carrying upon opposite ends guide pulleys 6 (one only of which being shown) over which passes the operating belt or cord 7.

In the Letters Patent No. 489,117, hereinbefore referred to, I showed and described a vertical shaft carrying rotatably therewith a cone pulley, said shaft having its opposite ends turning upon short bearing pins. In the present improvement, however, I provide a continuous and fixedly mounted shaft 8. Upon this shaft is arranged a collar 9, adjustably secured thereon by means of a set-screw 10. This collar has extending upward from the same a tube 12, which is rigid therewith.

The numeral 14 indicates a cone pulley, which is provided with a depending tubular stem 15, forming the hub of the pulley and adapted to surround the tube 12, and to rest on the collar 9. The top of the cone pulley is provided with a central aperture 17 which joins, or forms a continuation of, the depending tubular stem or hub 15. The cone pulley, of course, derives rotation through the operating belt 7. When it is desired to adjust the cone pulley, all that is necessary is to loosen the set-screw 10 and move collar 9 to the desired position, and then again tighten the screw. As the collar acts as a support for the cone pulley, of course said cone pulley will adapt itself to the position of the collar. As the guide pulleys 6 can, obviously, be dispensed with, and the operating cord, 7, extended to the cone pulley from either side, or forwardly and rearwardly, as best suits the position of the motor, the necessity for an adjustment of the cone pulley is apparent. It

also requires adjustment when the two belts are moved to different grooves of the pulley.

Bracket I has projecting therefrom a tubular arm or radius bar 20, which receives therein a sliding rod 21. The outer end of this rod is provided with a rigid collar 22, provided with a depending bearing 23, for a shaft 24, said shaft provided with end pulleys 25, 25 (one only being shown) quartered with reference to the cone pulley 9, and over which an endless cord 26 from the cone pulley passes. A loose collar 27 is arranged upon the sliding rod 21, and it may be adjusted to any position thereon by means of a set screw 28. This collar acts as a stop, and limits the inward movement of the rod 21. A radius bar depends from and turns upon the shaft 24, and this bar is composed of two sections, viz., an outer tubular part 29, and a rod 30 projecting into said tubular portion. Within the tube, and bearing upon the upper end of rod 30 is a coiled spring 31. The lower end of rod 30 is formed or provided with a curved or angular arm 32, which is provided at its lower end with an eye or aperture 33 to receive a shaft 34, held stationary by means of a screw 35. This shaft is bored out longitudinally, as shown clearly in Fig. 2, an opening 36 also being provided for the introduction of oil to the longitudinal bore, and an opening 37 provided for the outlet of the oil.

The numeral 38 indicates the driving pulley for the tool, said pulley provided with a long bearing stem 39, the bore of said stem near the inner face of the pulley being shouldered, as indicated at 40. The bearing stem is adapted to surround the stationary shaft 34, with its end abutting against the curved or angular arm 32. The inner end of shaft 34 is closed by a cap 41. The edge or rim of this cap is greater in circumference than the shaft, and is adapted to act as a stop to prevent the driving pulley 38 from working off the shaft by reason of its contact with the shoulder 40. Upon one face of the driving pulley 38 is provided a series of pins 42, preferably 3.

Extending from the upper straight portion of the curved or angular arm 32 is a segmental guide or lip 43 which enters a recess in the upper end of an arm 44, corresponding in shape to arm 32. By means of a pivot pin 45 arm 44 is free to turn in the arc of a circle upon the segmental guide or lip. The lower end of arm 44 has a tubular extension 46, which receives therein a hollow shaft 47. This shaft 47 projects out at opposite ends beyond the tubular extension 46, and one of these ends is intersected by a pin 48, which prevents movement of the shaft in one direction, and the other end is provided with another pin 49 acting against the end of the tubular extension 46 to retard movement in that direction. This latter pin also extends into the bore of the shaft 47, and engages a longitudinal recess 50 in a rod 51. In one end of this rod 51, is secured the spring portion 52, of the flexible power conveyer. The flexible power conveyer, and other parts, are protected by a sheath 53, which is screwed on to the threaded end of the tubular extension 46.

When the device is not in use, the arm 44 is swung up on its pivot, as shown in Fig. 1, and the flexible portion hung over a pin 54. In this position, should the motor, or other power for operating the machine, be started, the flexible power conveyer, of course, is not operated. This prevents the wrenching and straining to which the machine is necessarily subjected, when provision of this character is not made.

In Fig. 2, the parts are shown adjusted for operation, arm 44 being swung down so that the cross or intersecting pin 48 of hollow shaft 47 will lie between the pins 42 extending from the face of the driving pulley. It follows that when rotation is imparted to the driving pulley, one of the pins thereof will contact with one end of cross pin 48, and thereby impart rotation to the hollow shaft, while the latter will impart rotation to the operating tool through the rod 51 and intermediate flexible portion.

In the class of machines to which this invention relates there exists a certain amount of backlash, resulting in a disagreeable clicking sound. By the arrangement of the pins 42, adapted to contact with cross pin 48, this is almost entirely prevented.

It will be noticed that the upper straight portions or shoulders of arms 32 and 44 abut, so that all the strain is brought to bear against these abutting surfaces. The result of this is that the driving pulley is prevented from being so firmly pressed against the bearing of arm 32 as to create friction and is always maintained at a proper alignment.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a dental-engine, the combination, of a stationary shaft, a pulley rotatable and adjustable on the shaft, a belt leading from a source of power and passing around the pulley, an operating tool, a pulley for operating the same, and a belt connecting this pulley with the pulley of the stationary shaft, substantially as set forth.

2. In a dental-engine, the combination, of a stationary shaft, a collar adjustably set upon the shaft, a pulley provided with a depending stem carried by and adjustable with said collar, a belt leading from a source of power and passing around the pulley, an operating tool, a pulley for operating the same, and a belt connecting this pulley with the pulley of the stationary shaft, substantially as set forth.

3. In a dental engine, the combination, of an arm, said arm provided with an extension having a shouldered upper end and an apertured lower end, a shaft having its bearing in the aperture, a driving pulley mounted on said shaft, and provided on one of its faces with

clutch mechanism, an arm pivoted to the extension of the other arm and provided with a shoulder adapted when the pivoted arm is thrown down upon its pivot to abut against the shoulder of the extension, and a shaft carried by the pivoted arm, said shaft provided with clutch mechanism adapted to be thrown into engagement with the clutch of the pulley when the arm is thrown down upon its pivot, whereby the shaft is rotated, substantially as set forth.

4. In a dental engine, the combination, of an arm, a driving pulley having its axis in the arm, said pulley provided upon one of its faces with a series of projecting pins, a pivoted arm, and a shaft carried thereby, said shaft having its end intersected by a pin which is adapted to be acted upon by any of the series of pins from the face of the pulley, when the arm is thrown down upon its pivot, substantially as set forth.

5. In a dental engine, the combination, of an arm, a driving pulley having its axis in the arm, said pulley provided upon one face with a series of projecting pins, a pivoted arm having a tubular extension at its lower end, a hollow shaft having an intersecting pin at one end adapted to be engaged by the pins on the face of the pulley, when the arm is thrown down upon its pivot, and provided upon its opposite end with a pin adapted to be brought into contact with the adjacent end of the tubular extension to act as a limiting stop, and also extending inward into the bore of the hollow shaft, a rod provided with a longitudinal recess to receive the inward extending end of the pin, and a flexible section connected to the rod, substantially as set forth.

6. In a dental engine, the combination, of an arm, said arm formed or provided with an apertured extension, a shaft having its bearing in the aperture and provided on one end with a shoulder and a driving pulley carried by the shaft and provided with a central opening having an interior shoulder, whereby a stop is formed adapted to abut against the shoulder of the shaft, substantially as set forth.

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

FREDERICK H. BERRY.

Witnesses:
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