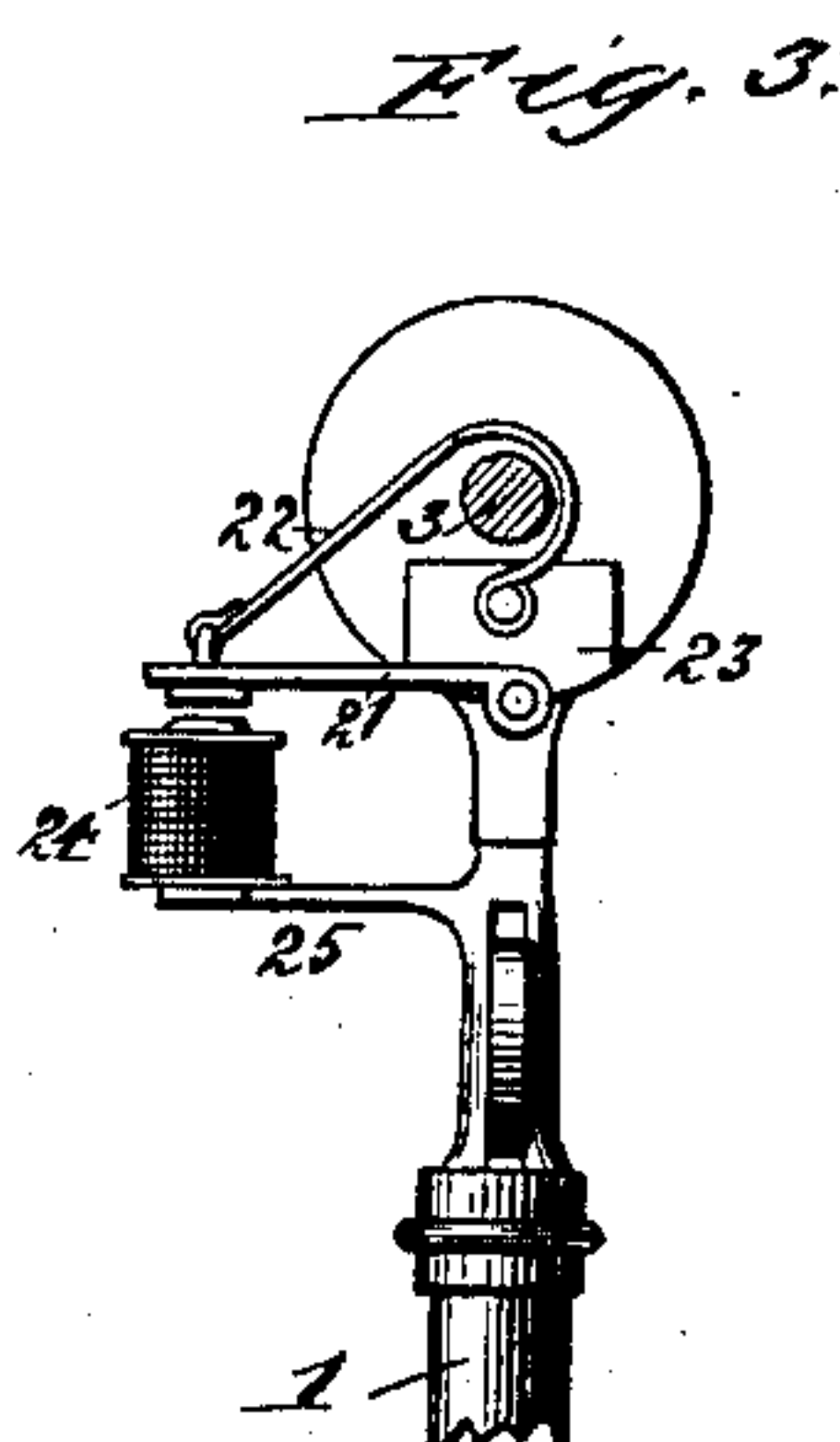
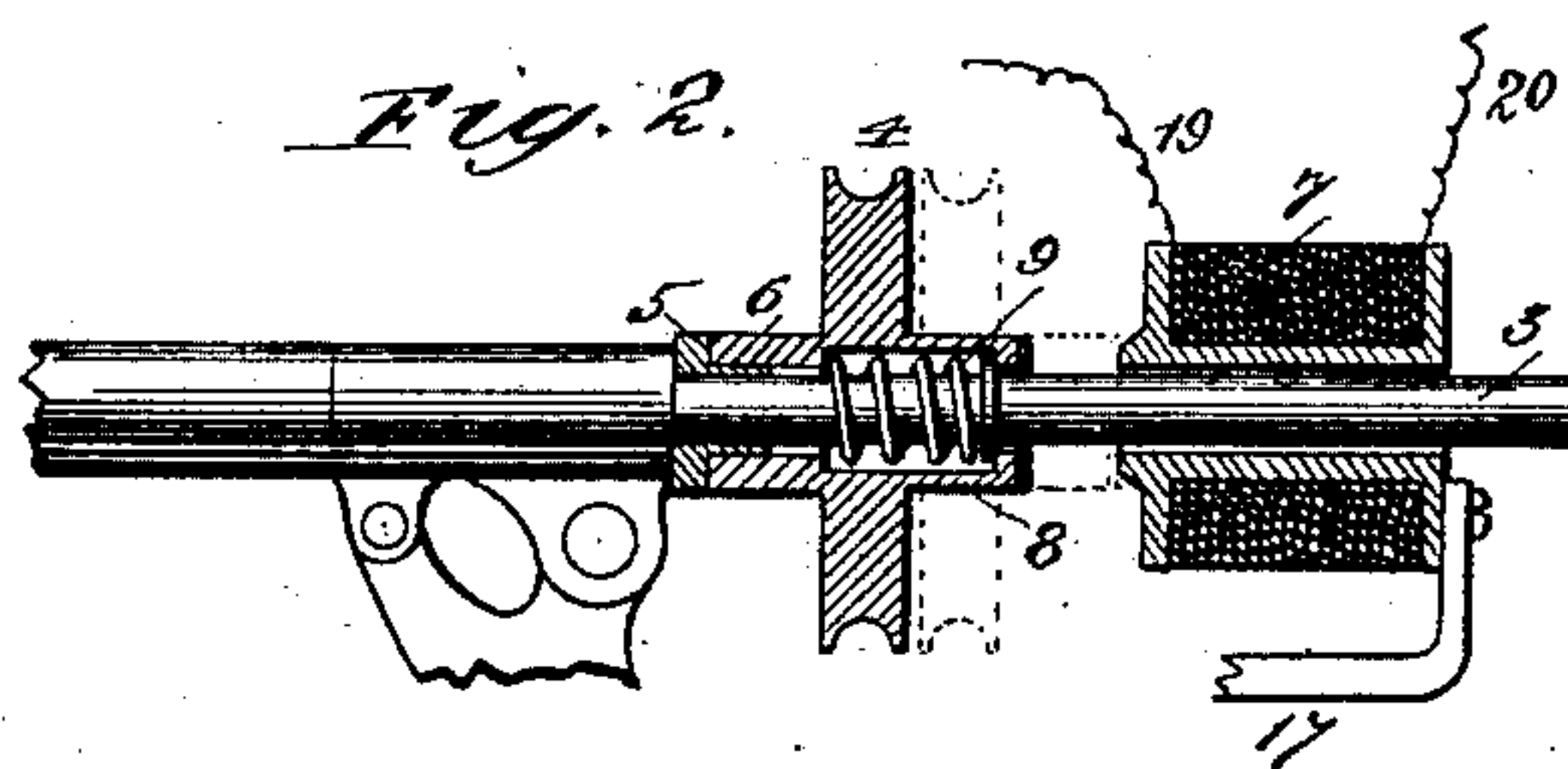
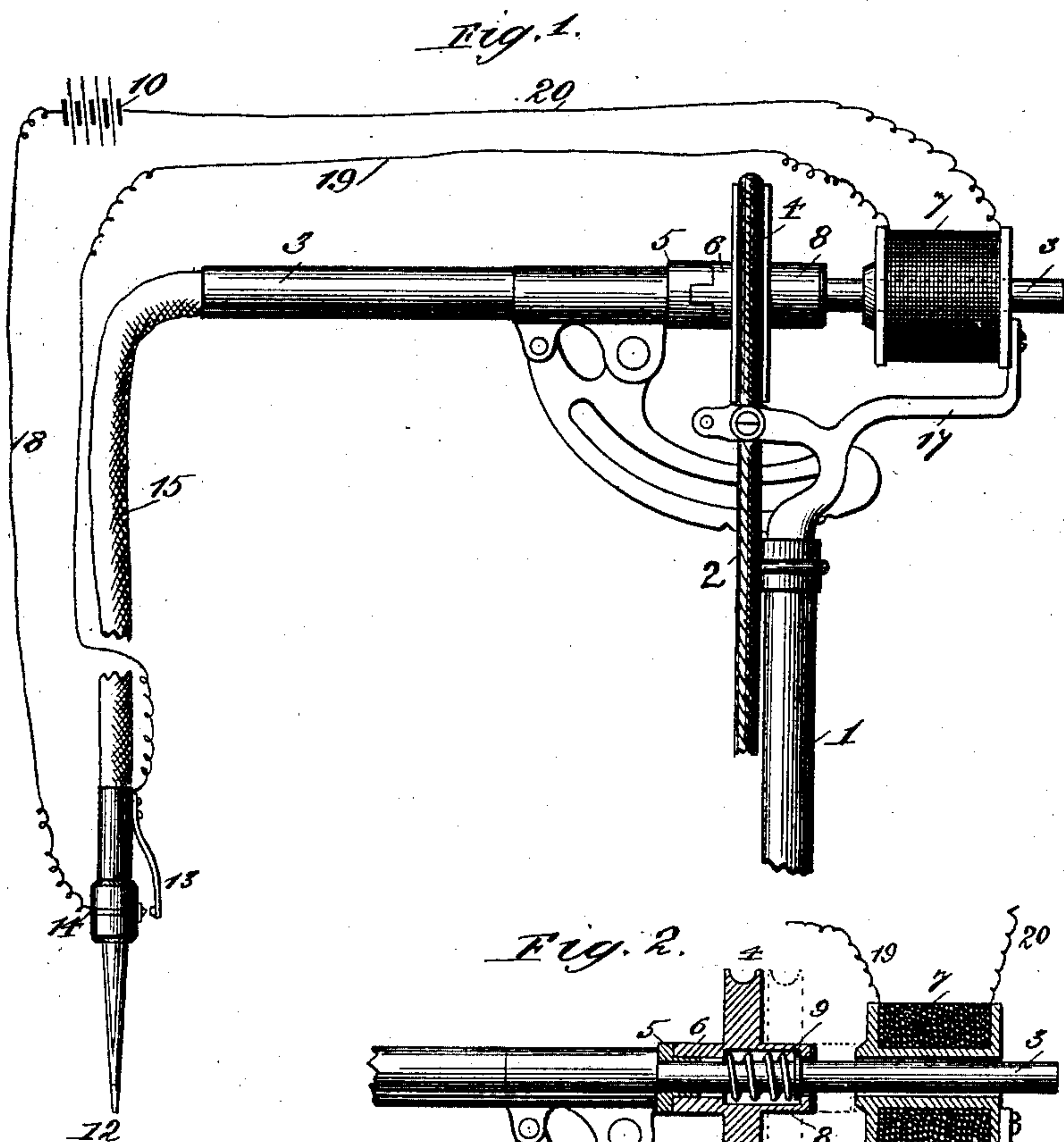


(No Model.)

G. W. WHITEFIELD.
ELECTRICAL DENTAL ENGINE.

No. 374,225.

Patented Dec. 6, 1887.



Witnesses.

W. Fossett
Wm S. Bates

Inventor:

George W. Whitefield
By C. C. Litchman
Atty

UNITED STATES PATENT OFFICE.

GEORGE W. WHITEFIELD, OF EVANSTON, ILLINOIS.

ELECTRICAL DENTAL ENGINE.

SPECIFICATION forming part of Letters Patent No. 374,225, dated December 6, 1887.

Application filed August 16, 1887. Serial No. 247,051. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. WHITEFIELD, of Evanston, Illinois, have invented certain new and useful Improvements in Dental and Similar Engines, of which the following is a specification.

This invention relates more especially to means for stopping dental and similar engines; and it is peculiarly adapted for use with high-speed engines, in which it is especially desirable to have the tool under control and capable of being almost instantaneously stopped. In dental engines the burr or other tool very often gets caught in the rubber dam, and if not stopped quickly the rubber is wound up on the tool, to the great discomfort of the patient. Sometimes, also, when in use the tool will suddenly find a cavity, or some other cause for quickly stopping its motion will arise. To the above end I make use of an electric current for stopping the engine, and I apply it by arranging a brake or a clutch, or both, or some equivalent device, at some convenient point between the power and the tool, and combining therewith an electro-magnet by which the clutch or brake or other device is operated, and an electric contact or key within reach of the operator, so that by a simple pressure of the finger or the foot, for example, the motion of the tool may be suddenly arrested.

In the accompanying drawings I have represented part of a dental engine of ordinary type with my invention applied to it in the form preferred by me.

In the drawings, Figure 1 is an elevation, and Fig. 2 a section through the clutch and magnet. Fig. 3 shows how the brake may be applied.

In Figs. 1 and 2, 1 is the standard of the ordinary dental engine. 2 is the driving-belt. 3 is the driven shaft. 4 is the pulley. 5 is the fixed member of the clutch. 6 is the movable member of the clutch. It is attached to the pulley 4, and it and the pulley are capable of a motion to the right, as indicated by the dotted lines in Fig. 2. 7 is an electro-magnet, the attraction of which draws the pulley 4 and the movable member 6 of the clutch to the right, so that the two members of the clutch are disengaged. 9 is a spring in the hub of the pulley. It bears against a collar on the shaft at the right and presses the two parts of the clutch together. 10 is a battery or other source of electricity. 12 is

the chuck or tool-holder. 13 is a key provided with contact-points, one of which is connected by the wire 18 with one terminal of battery 10, and the other is connected with the other terminal of the battery by wire 19, the electro-magnet 7, and wire 20. When in use, the part 14 is ordinarily in the hand of the operator, so that the key 13 is within his reach. In fact, a finger may be kept on the key, so that a simple pressure will suffice to stop the revolution of the tool.

In Fig. 3 I have shown how a brake may be used instead of or in addition to the clutch. In this figure, 24 is the magnet secured to a bracket, 25, on the frame. 21 is an arm pivoted to the frame and carrying the armature of the magnet at its free end. 22 is a strap having one end secured to the frame 23 and the other end secured to the free end of lever 21. The magnet is joined in circuit in the same way as magnet 7, Fig. 1. When the key is pressed, the circuit is established, the armature attracted, and the strap 22 drawn closely around shaft 3 or a brake-wheel on it, thus stopping its motion.

In some cases it may be desirable to use both clutch and brake together on the same engine, particularly if the moving parts have any weight or the speed is high. In other cases one of said devices may be used without the other. In some cases it may be expedient to locate the key within reach of the foot or some other part of the body instead of near the hand.

I do not claim herein the brake mechanism, either by itself or in combination with the clutch, as I intend to incorporate that subject-matter in another application.

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

1. The combination, substantially as set forth, of the dental engine, the tool driven thereby, the electrically-operated stop mechanism for suddenly bringing the tool to rest, and the key within reach of the operator for throwing said mechanism into action.

2. The combination, substantially as set forth, of the engine, the clutch, the electro-magnet for operating the clutch, and the key for throwing the magnet into action.

GEORGE W. WHITEFIELD.

Witnesses:

WM. S. BATES,
TAYLOR E. BROWN.