

(No Model.)

E. B. CUTTEN.
MAGNETO ELECTRIC MACHINE.

No. 581,340.

Patented Apr. 27, 1897.

Fig. 1.

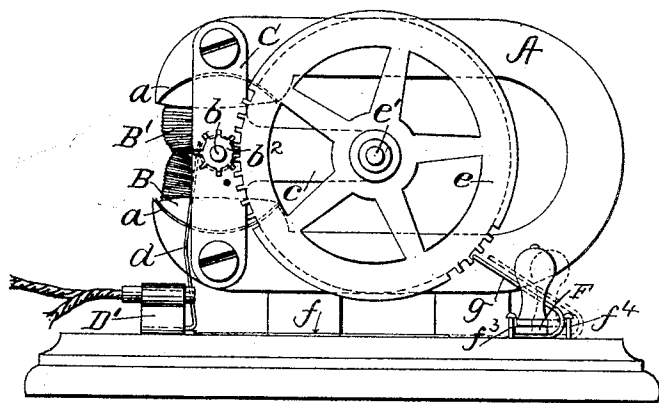


Fig. 2.

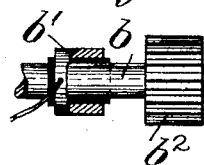
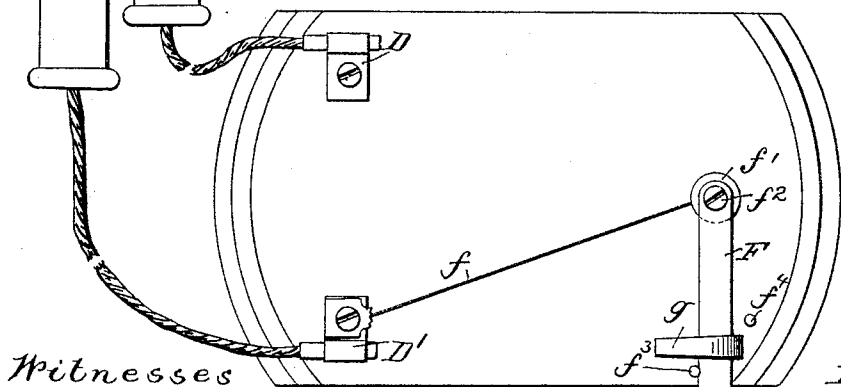
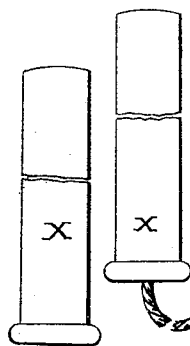
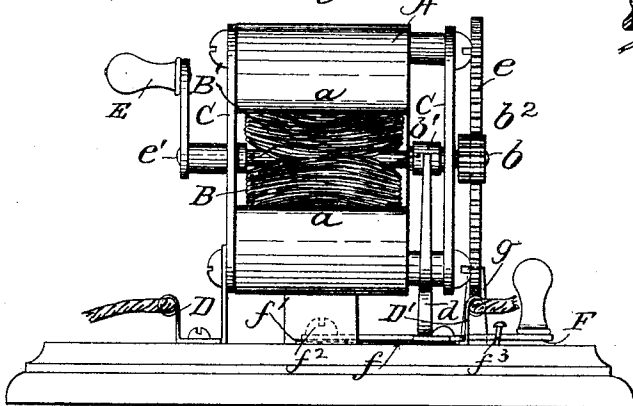


Fig. 2.



Witnesses
H. R. Edison.
J. W. Lunt.

Fig. 4.

Inventor
E. B. Cutten,
by J. H. Mauro,
his attorney.

UNITED STATES PATENT OFFICE.

ELISHA B. CUTTEN, OF ATLANTIC HIGHLANDS, NEW JERSEY, ASSIGNOR OF ONE-HALF TO THE RHODE ISLAND TELEPHONE AND ELECTRIC COMPANY, OF PROVIDENCE, RHODE ISLAND.

MAGNETO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 581,340, dated April 27, 1897.

Application filed February 12, 1897. Serial No. 623,148. (No model.)

To all whom it may concern:

Be it known that I, ELISHA B. CUTTEN, of Atlantic Highlands, Monmouth county, New Jersey, have invented new and useful Improvements in Magneto-Electric Machines, which are fully set forth in the following specification.

My invention relates to magneto-electric machines, and particularly to that type of such machines known as "hand" machines, or machines capable of being manually operated and adapted for generating an electric current to be used for medicinal or curative purposes or for amusement and experiment.

The invention consists, essentially, in providing a shunt-circuit for the armature-current of an ordinary magneto-electric machine of the type indicated and in locating in said shunt-circuit a suitable make-and-break device, whereby the same is rapidly interrupted, the current being thereby thrown upon the normal armature-circuit during the interruption of the shunt-circuit, and the effect being a charging of the armature-winding during the periods of the closure of the shunt and the discharging of the same over the normal circuit during the interruptions of the shunt-circuit, resulting in the production of an intermittent current capable of giving a more or less intense shock. A suitable switch is provided whereby the shunt-circuit may be permanently broken and the apparatus operated in the ordinary manner.

The invention also embraces important structural features, whereby the apparatus is greatly simplified, the principal of which is the interposition as a part of the shunt-circuit of the multiplying gear-wheel for driving the armature, a spring pressing against the teeth of said wheel acting as the make-and-break device for the shunt-circuit. By moving the spring to a position out of engagement with the gear-wheel the shunt-circuit is permanently broken.

The invention will be better understood by reference to the accompanying drawings, illustrating what has been found to be a very convenient form of machine embodying my invention, and wherein—

Figure 1 is a side elevation. Fig. 2 is an end view from the left of Fig. 1. Fig. 3 is a plan view with the stationary horseshoe magnet and other parts removed to show the circuit connections to the switch-lever, and Fig. 4 is a detail view.

Referring to the drawings, A represents an ordinary horseshoe magnet mounted upon a suitable base, and between the poles *a a* of which is located the armature B, mounted to rotate on axle *b* in suitable bearings in framework C.

B' is the armature-winding, one end of which is connected to the axle *b* and the other end to a collar *b'* on said axle, but insulated therefrom.

D D' are binding-posts, the former in electrical connection with the framework C and the latter in electrical connection with a brush or spring *d*, which presses against collar *b'*.

X X are electrodes connected to binding-posts D D' by suitable flexible conductors.

Axle *b* of the armature projects at one end beyond the framework C, and on said projecting end carries a pinion *b*², which meshes with a large multiplying gear *e* on the end of a shaft *e'*, supported in bearings in the ends of horizontal arms *c c* of framework C. At its other end shaft *e'* carries a crank-handle E for rotating the same.

It will be understood that the circuit of the electric current generated by the apparatus as thus far described is as follows: binding-post D to framework C, to axle *b*, through the armature-winding B' to collar *b'*, brush *d*, to binding-post D'.

The shunt-circuit and its controlling devices will now be described. From the binding-post D' a metallic conductor *f* leads to a plate *f'*, against the upper surface of which a switch-lever F is pivotally secured by a screw *f*², movement of the lever being limited by the stops *f*³ *f*⁴.

g is a spring-contact device secured to and movable with the lever F and adapted thereby to be thrown into and out of position for engagement with the teeth of gear-wheel *e*. As shown in full lines in Fig. 1 the spring is in position for engagement with the gear-

wheel, and as shown in dotted lines it is out of position for such engagement.

The shunt-circuit of the apparatus may now be traced as follows, the parts being in the position indicated by full lines in Fig. 1: axle *b*, through the winding *B'* of the armature, to collar *b'*, brush *d*, conductor *f* to plate *f'*, through lever *F*, spring-contact *g* to gear *e*, framework *C*, and pinion *b²* to axle *b*.

In operation as the gear-wheel *e* is rotated to drive the armature the shunt-circuit is rapidly interrupted or broken as the spring *g* snaps from tooth to tooth of said gear, causing the armature-winding to become strongly charged during the intervals of closure of the shunt-circuit and to discharge such accumulated charge over the normal circuit through electrodes *X X* during the intervals that the shunt-circuit is broken. A very intense shock may thus be administered to a person holding the electrodes.

By throwing the switch-lever to the position indicated by dotted lines in Fig. 1, permanently breaking the shunt-circuit, the ordinary low-tension current of the apparatus may be sent over the circuit of the electrodes.

Modifications may be made without departing from the principle of the invention.

Having thus described my invention, what

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

1. In a magneto-electric machine, the combination with the normal armature-circuit, and driving mechanism for the armature including a gear-wheel, of a spring-contact device adapted to engage the teeth of the gear-wheel during rotation thereof, and a shunt-circuit for the armature-current including said wheel and spring-contact device, substantially as described.

2. In a magneto-electric machine, the combination with the armature-winding and driving mechanism for the armature including as part thereof a gear-wheel, of a spring-contact device adapted to engage the teeth of the gear-wheel during rotation thereof, a shunt-circuit for the armature including said wheel and spring-contact device, and means—such as a lever—for moving said spring-contact out of position for engagement with the gear-wheel, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ELISHA B. CUTTEN.

Witnesses:

DEXTER B. POTTER,
H. A. BRECKENRIDGE.