

J. E. EMLEY.
ELECTRIC MOTOR.

No. 344,262.

Patented June 22, 1886.

Fig. 1.

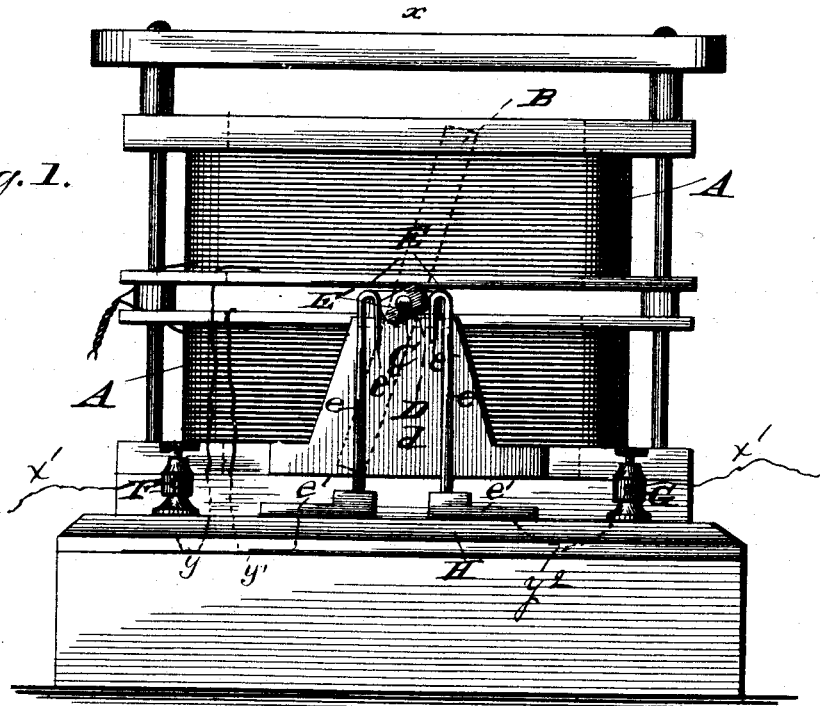
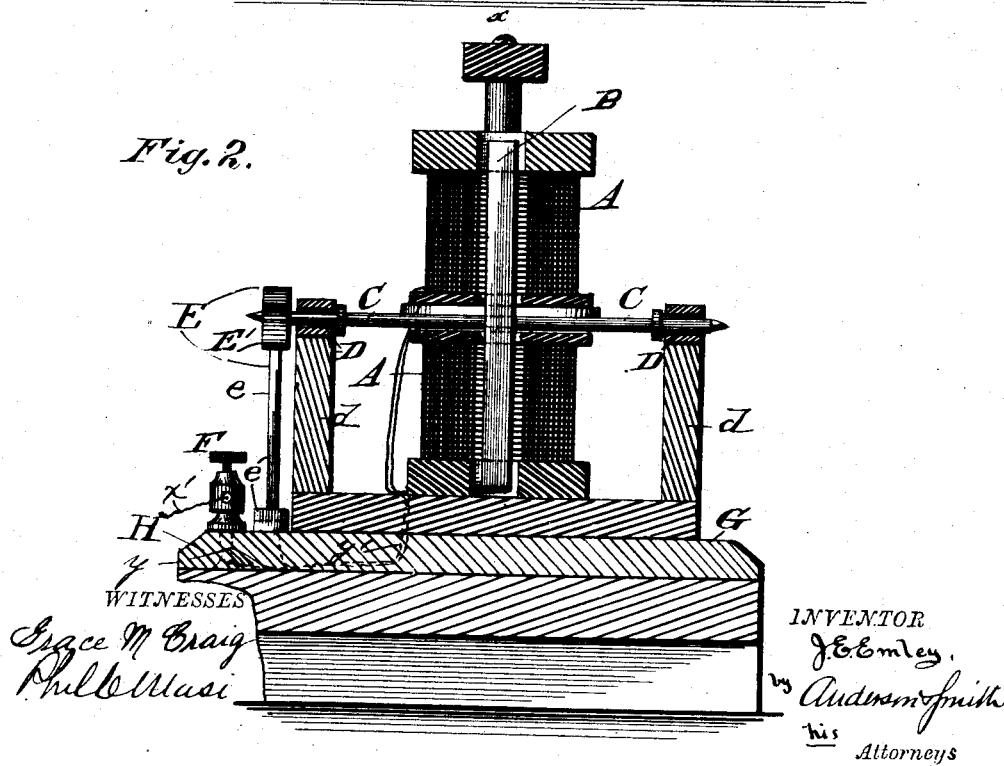


Fig. 2.



WITNESSES
Grace M. Craig
Phil Masi

INVENTOR
J. E. Emley.
by Anderson & Smith
his Attorneys

UNITED STATES PATENT OFFICE.

JAMES E. EMLEY, OF WEATHERFORD, TEXAS.

ELECTRIC MOTOR.

SPECIFICATION forming part of Letters Patent No 344,262, dated June 22, 1886.

Application filed May 9, 1885. Serial No. 164,922. (No model.)

To all whom it may concern:

Be it known that I, JAMES E. EMLEY, a citizen of the United States, residing at Weatherford, in the county of Parker and State of Texas, have invented certain new and useful Improvements in Electric Motors; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of a front elevation. Fig. 2 is a transverse section on line *x x*, Fig. 1.

The invention consists in improvements in electric motors; and it consists, essentially, in such combination of an automatic circuit-breaker with a bar of soft iron secured centrally on a shaft journaled in bearings secured to the motor-frame and rotating within a coil or helix that the rotation of said bar will continuously make and break circuit, and that the action of the circuit-breaker will cause the continuous rotation of the bar.

It further consists of certain details of construction and arrangement of parts, hereinafter described, and pointed out in the appended claims.

Referring by letter to the accompanying drawings, A designates a coil or helix of insulated wire made in the ordinary well-known manner, which coil is very broad longitudinally to the motor and narrow transversely to the same, for a reason hereinafter evident. The coil is also separated into equal upper and lower parts, to allow the shaft C, hereinafter described, to pass through without twisting the wires of the same.

B is a bar of soft iron situated within the coil A, and secured at its center on the shaft C, which passes transversely between the upper and lower parts of the coil A, and has end bearings, D D, in uprights or standards *d d*, rising from the frame of the motor in each side of the coil.

E' is a metallic block secured to one end of the shaft outside of one of its bearings. The block E' lies in a plane that forms a proper angle with the plane in which the bar B lies.

e e are metallic spring-strips, which are secured at their lower ends to metallic blocks *e'*, fixed to the base H of the motor. The upper ends, *e'' e''*, of the strips *e* are bent toward each other, and then vertically downward, and are slightly nearer together than the length of the block E'. The said blocks and strips form together the circuit-breaker E, as shown.

F and G are the binding-posts for the circuit-wires X' X' to and from the battery. The electric current flows from the binding-post F through the wire *y*, Fig. 2, to the helix A, and passes through the same and through the wire *y'* to the block *e'*, adjacent to the binding-post F. It then passes up the strip *e*, connected with said block, through the block E', down the opposite strip *e* to the block *e'* on that side, and thence through the wire *y''*, Fig. 1, to the binding-post G, whence it returns to the battery. The block E' has its ends made on the arcs of a circle, of which the axial line of the shaft C is the center, so that in turning between the ends *e''* the latter will not be pressed far enough apart to cause unnecessary friction. The said block is set at such an angle with the bar B, Fig. 1, that when the latter is approaching a vertical position the circuit will be broken, and will remain so till the end of the bar that was lowest rises to a higher position than the other end.

It is evident from the above that when the current is flowing the bar B must be in an inclined position. When the circuit is completed and the current flowing through the circuit-breaker and the helix, the latter in the well-known manner causes the bar B to become magnetized and assume a position in the axial line of the helix. This motion causes the block E' to rotate, and its ends to separate from the strips *e e*, so as to break the circuit. The bar then is demagnetized, and has acquired sufficient momentum to carry it far enough around to again close the circuit, when it is again magnetized and the former action repeated. Thus the circuit is alternately closed and broken, and the bar B continuously rotated. A pulley may be placed on the end of the shaft opposite the circuit-breaker, and any light mechanism driven therefrom.

Instead of the helix being separated with two coils, there may be one coil only, with the

bearings so arranged as to leave openings for the shaft C to pass through. The bar B at no time touches any part of the surrounding helix, but is actuated by the electric current there-
5 through.

Having described this invention, what I claim is--

1. In an electric motor, a bar of iron rotating within a helix in electric circuit, in combination with a circuit-breaker caused by the rotation of said bar to alternately make and break the circuit through the helix, and thereby keep the shaft rotating, as set forth.

2. The combination, in an electric motor, with a bar of soft iron secured to a shaft and rotating within a helix in electric circuit, of a circuit-breaker secured on said shaft at an angle with the said bar, and arranged to break

circuit when the bar is approaching the axial line of the helix and close circuit when the previously lower end of said bar has rotated above the central longitudinal line of the helix, substantially as specified.

3. In an electric motor, the combination of the helix A, separated into upper and lower equal coils, the shaft C, the bar of soft iron B, and the circuit-breaker E, composed of the metallic block E' and the metallic strips e e, substantially as specified.

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

JAMES E. EMLEY.

Witnesses:

W. J. CANON,
J. L. FUSTON.