

No. 656,972

Patented Aug. 28, 1900.

E. A. HENRY.  
ELECTRIC MOTOR.

(Application filed Mar. 21, 1900.)

(No Model.)

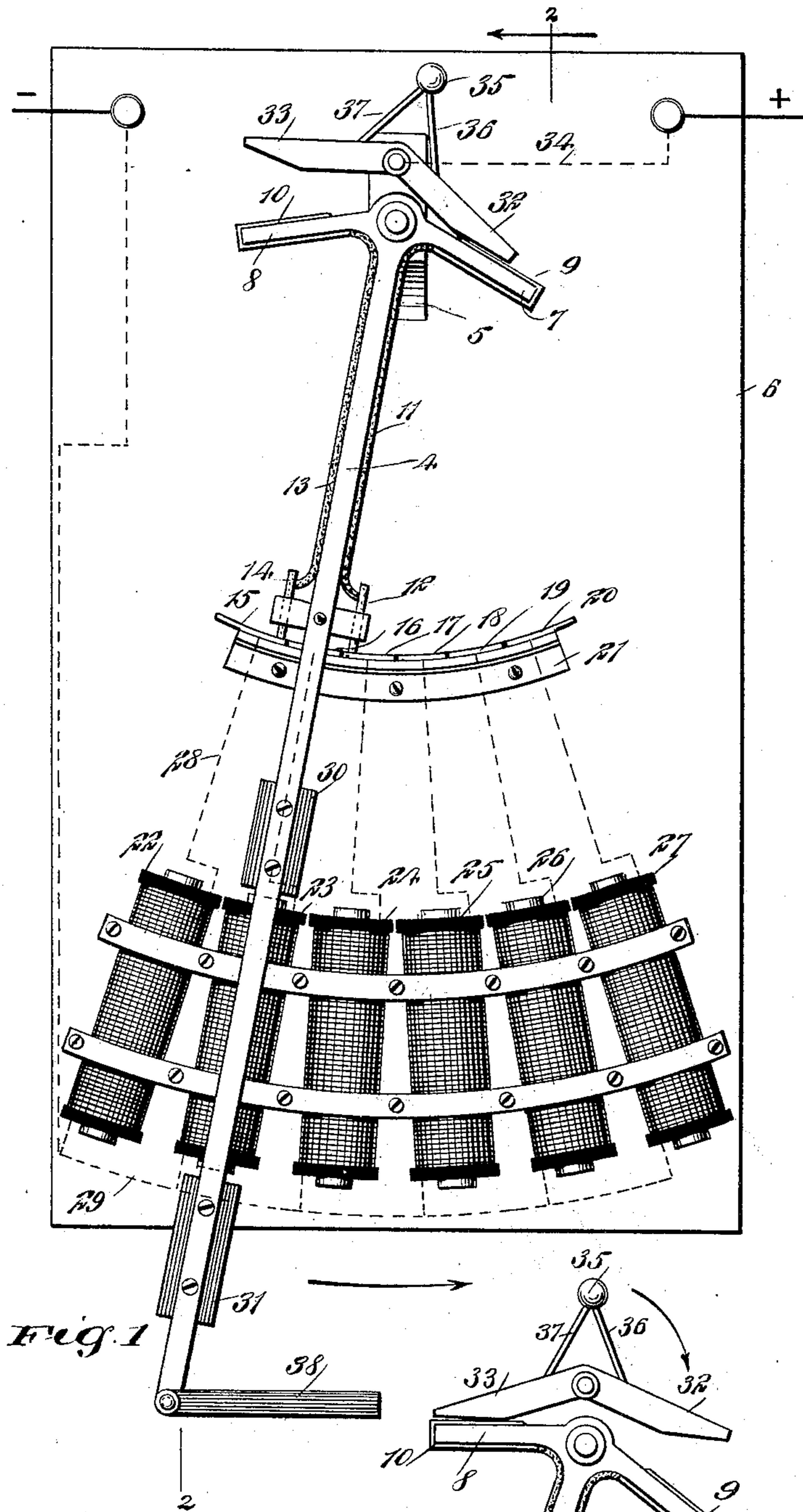


Fig. 1

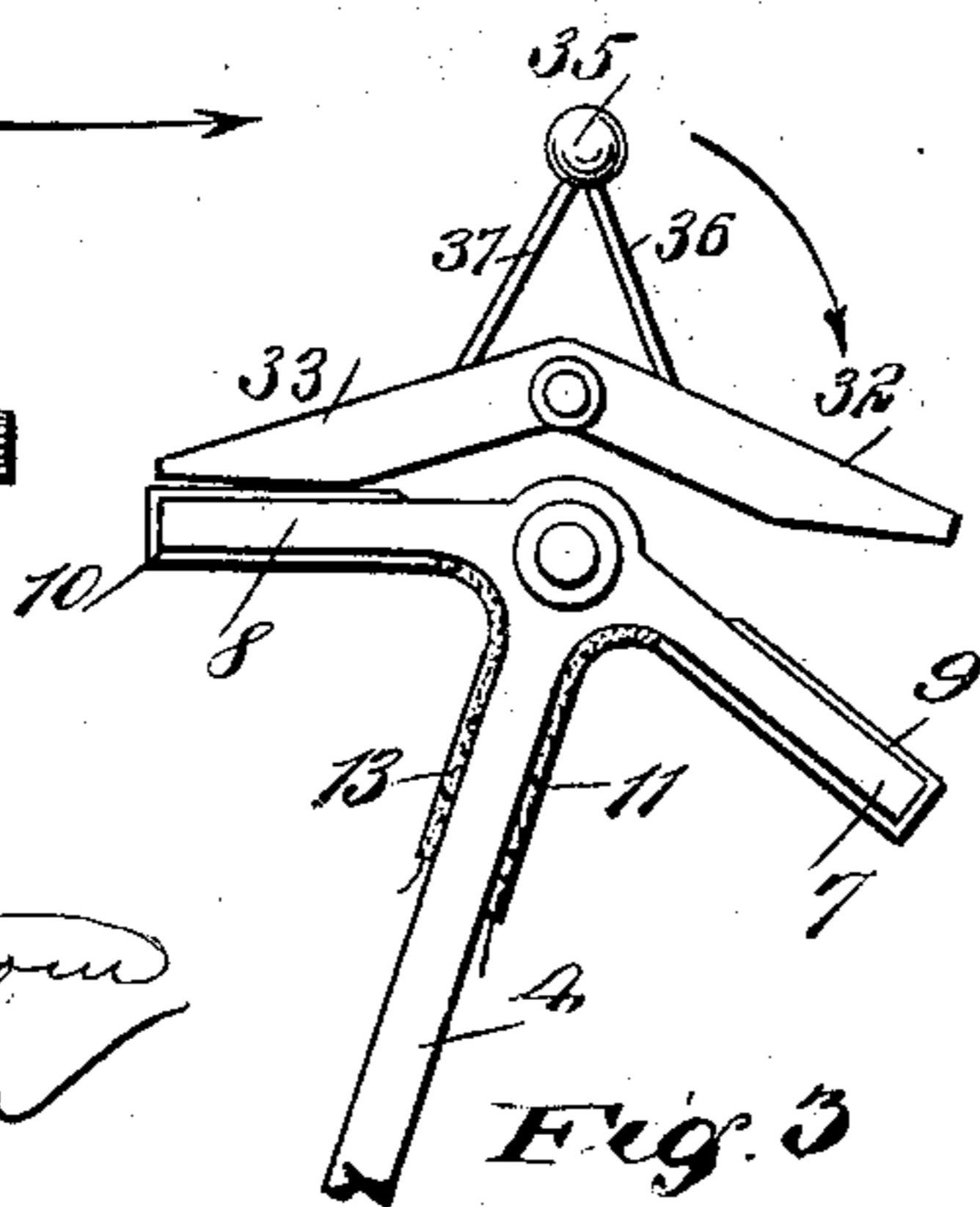


Fig. 3

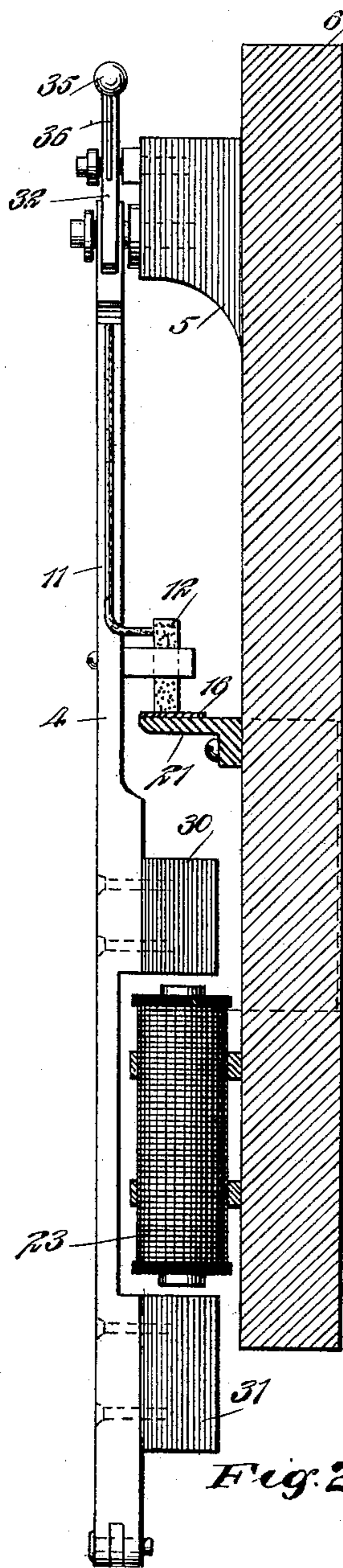


Fig. 2

WITNESSES:

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ATTORNEYS

# UNITED STATES PATENT OFFICE.

EDWARD ARCH HENRY, OF CRESTLINE, KANSAS, ASSIGNOR TO EDWARD A. HENRY AND J. LEWIS GRISWOLD, OF SAME PLACE.

## ELECTRIC MOTOR.

SPECIFICATION forming part of Letters Patent No. 656,972, dated August 28, 1900.

Application filed March 21, 1900. Serial No. 9,583. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD ARCH HENRY, a citizen of the United States, and a resident of Crestline, in the county of Cherokee and State of Kansas, have invented a new and Improved Electric Motor, of which the following is a full, clear, and exact description.

This invention relates to improvements in electric motors particularly adapted for operating vibrating fans or other devices requiring comparatively little power to operate; and the object is to provide a motor of simple construction, cheap to manufacture, and not liable to get out of order.

I will describe an electric motor embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is an elevation of a motor embodying my invention. Fig. 2 is a section on the line 2 2 of Fig. 1, and Fig. 3 is a detail of the circuit-closing device.

Referring to the drawings, 4 designates a pendulum-arm mounted to swing on a bracket 5, attached to a base 6. At its upper end this pendulum-arm has opposite extensions 7 8, provided, respectively, with contact-plates 9 10. The contact-plate 9 is in electrical connection through a wire 11 with a brush 12, and the plate 10 is in electrical connection through a wire 13 with a brush 14, and these brushes are carried by the arm 4 and are adapted to contact with plates 15, 16, 17, 18, 19, and 20, arranged in a segment of a circle and supported on a bracket 21, attached to the base 6 and insulated one from another.

Arranged below the said contact-plates is a series of electromagnets 22, 23, 24, 25, 26, and 27, the said electromagnets being connected at one end by wires 28 with the contact-plates and at the other end to a wire 29, leading to a course of electricity. Mounted on the arm 4 are soft-iron armatures 30 31, the upper armature 30 coacting with the upper ends of the magnet-cores, while the lower armature 31 coacts with the lower ends of said cores.

Pivoted to the bracket 5 above the extensions 7 8 of the arm 4 is a circuit-controller,

consisting of an angle-lever having the two arms 32 33, the arm 32 being adapted for engagement with the contact-plate 9, while the arm 33 is designed to engage with the contact-plate 10. This circuit-controller is connected to the source of electricity by means of a wire 34, and mounted in the upper side thereof is a counterbalance 35, the said counterbalance being connected to the members of the circuit-controller by divergent rods 36 37. The lower end of the arm 4 is designed to be connected with the device to be operated. I have here shown it as having pivotal connection with a draw-bar 38.

In operation when the member 32 of the circuit-controller is in engagement with the plate 9, as indicated in Fig. 1, and while the other parts are in the position indicated in said figure, the current will be directed through the plate 9, the wire 11, the brush 12, the plate 17, and thence through the electromagnet 24. The electromagnet 24 by thus energizing will attract the armatures 30 and 31, causing the arm 4 to move to the right, and during this movement the brush 12 will engage with the next plate 18, energizing the electromagnet 25, which will cause the arm to be moved still farther, and this will continue until the last electromagnet 27 is reached. At this point the weight 35 will be thrown to the left in a vertical line from the pivot for the circuit-controller, which will cause said circuit-controller to be rocked, moving its portion 33 into engagement with the contact-plate 10. Then the current will be through the brush 14, the electromagnet 26, and so on until the arm shall have completed its movement to the left.

While I have shown but six electromagnets, it is obvious that a greater or less number may be employed without departing from the spirit of my invention.

A motor constructed as shown and described will be of very simple and comparatively inexpensive construction and well adapted for operating fans in a building or other similar devices.

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

1. In an electric motor, a series of electro-

magnets arranged in the arc of a circle, a pendulum-arm, an armature carried by said arm for coacting with the electromagnets, circuit-closers carried by said arm, and a circuit-controller for engaging with said arm to close the circuit alternately at opposite sides, substantially as specified.

2. An electric motor, comprising a series of electromagnets arranged in the arc of a circle, contact-plates arranged in the arc of a circle and having connection with the electromagnets, a pendulum-arm, an armature carried by said arm for coacting with the electromagnets, a circuit-controller adapted for engagement with contact-plates carried by the arm and having electrical connection with circuit-closers, the said controller being arranged in the electric circuit, and a counterbalance for said controller, substantially as specified.

3. An electric motor, comprising a series of electromagnets, contact-plates having electrical connection with the electromagnets, a swinging arm having opposite extensions at its upper end, contact-plates on said extensions, brushes carried by the arm, the said brushes engaging with the contact-plates first mentioned and having electrical connection

with the contact-plates on the extensions, a circuit-controller in the form of an angle-lever arranged in the electric circuit, and a counterbalance-weight for operating said controller, substantially as specified.

4. An electric motor, comprising a series of electromagnets arranged in the segment of a circle, a pendulum-arm, two armatures carried by said pendulum-arm for coacting with the opposite ends of the electromagnets, a series of contact-plates having connection with the electromagnets, brushes carried by the pendulum-arm and adapted for engagement with said contact-plates, contact-plates mounted on extensions at the upper end of said arm and having electrical connection with the brushes, and a rocking circuit-controller having engagement with the contact-plates mounted on the extensions, substantially as specified.

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

EDWARD ARCH HENRY.

Witnesses:

J. LOUIS GRISWOLD,  
W. J. MOORE.