

(No Model.)

J. P. B. FISKE.
ELECTRIC CONTROLLER.

No. 549,598.

Patented Nov. 12, 1895.

Fig. 1

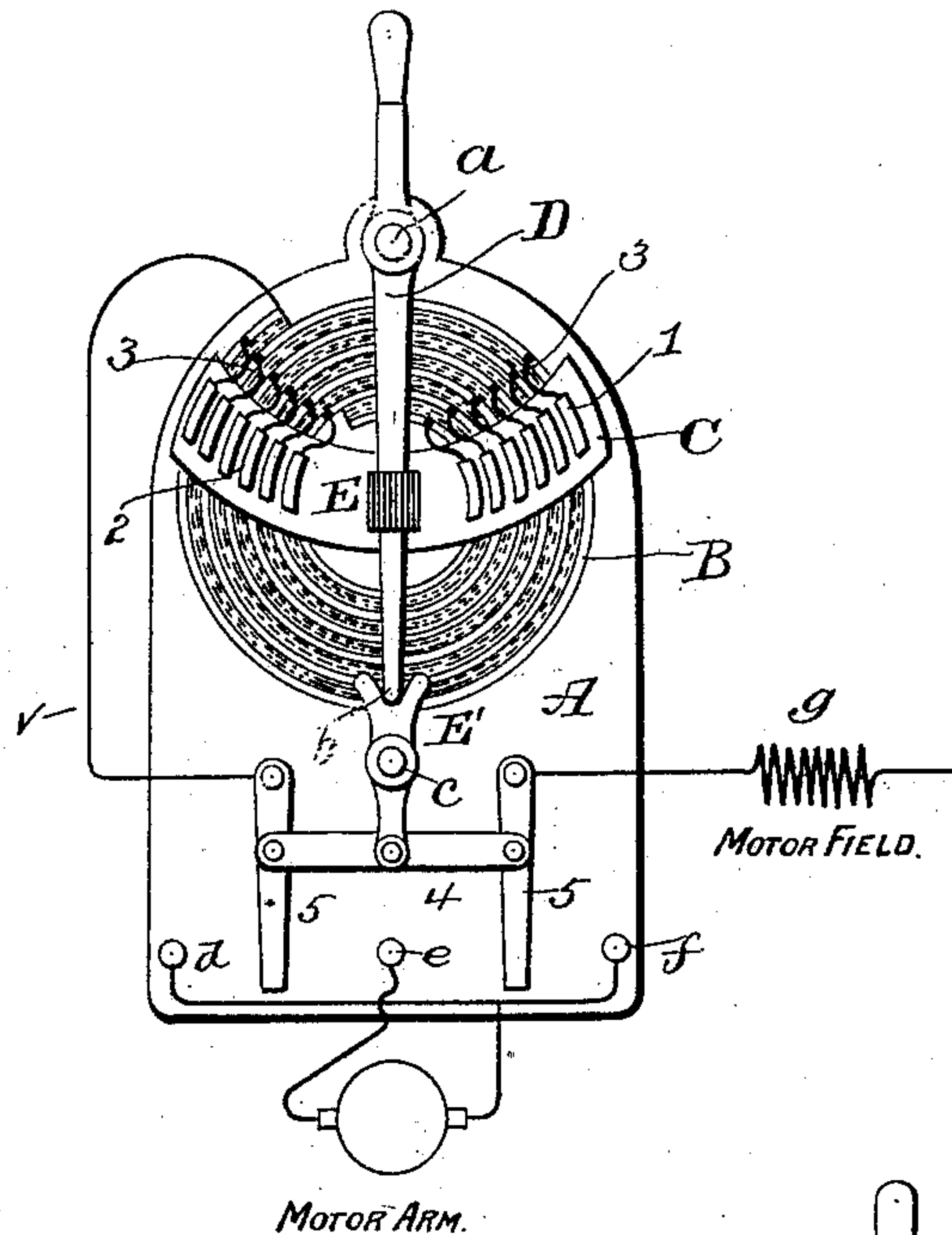


Fig. 2

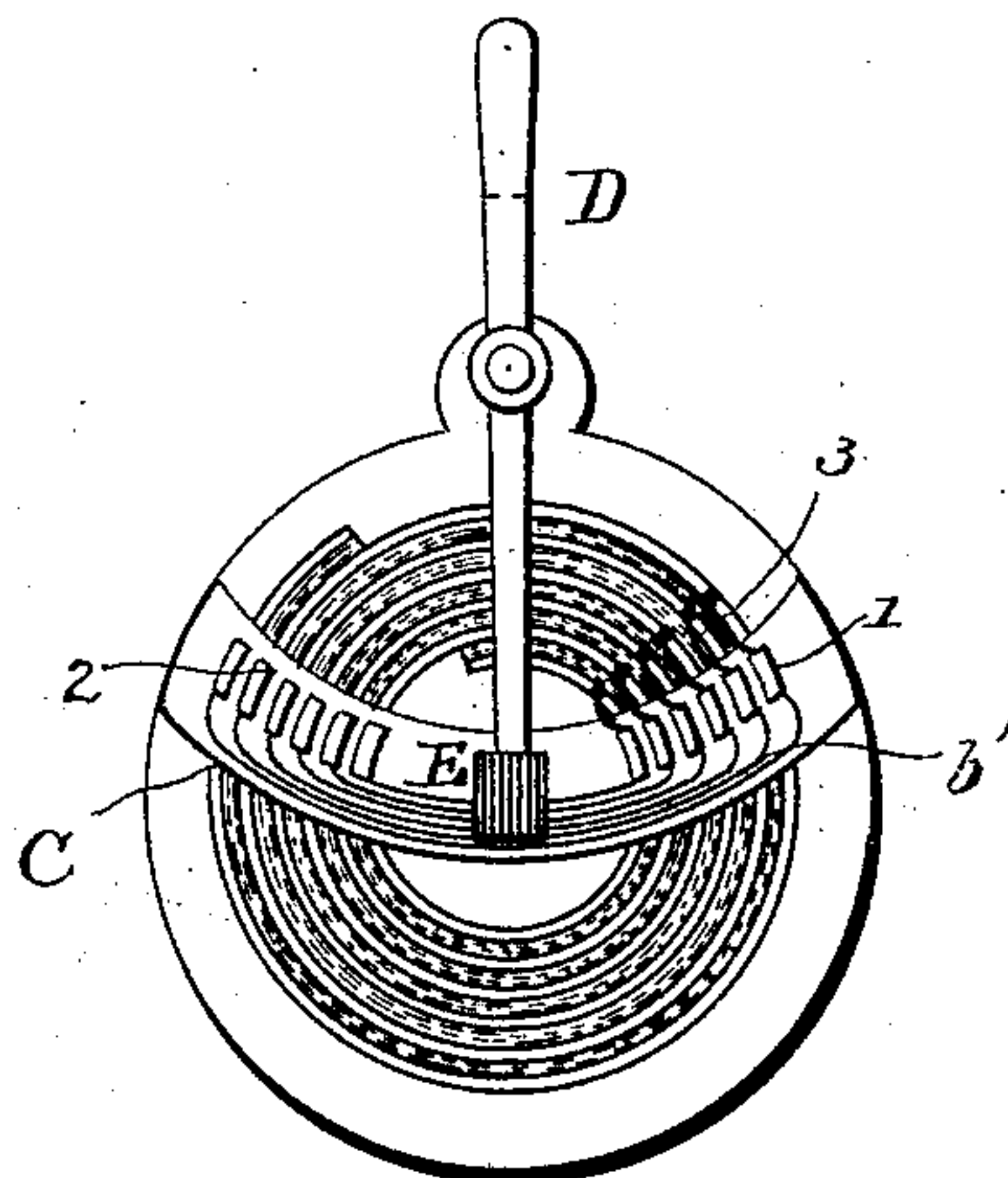
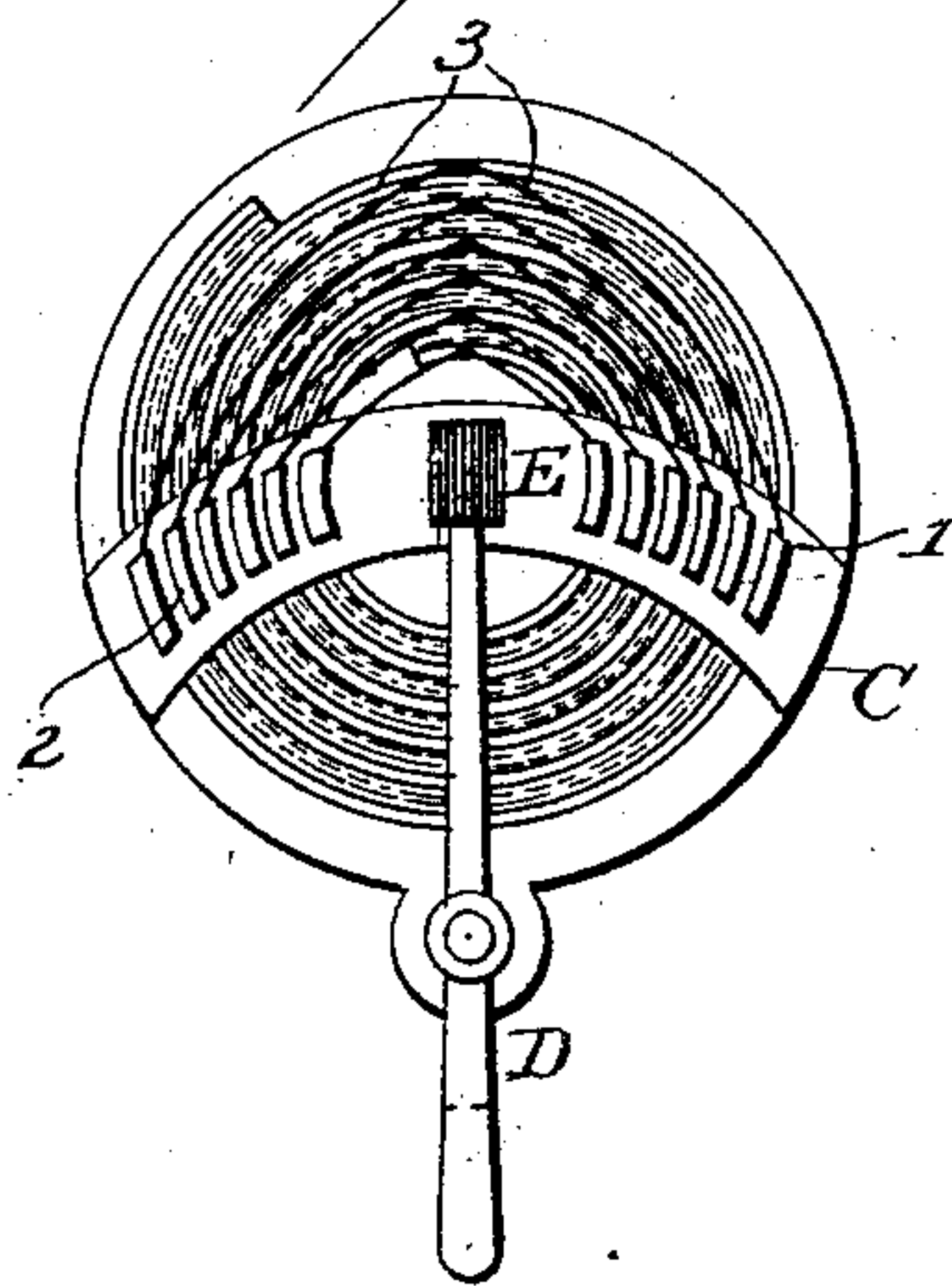


Fig. 3

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JONATHAN P. B. FISKE, OF ALLIANCE, OHIO.

ELECTRIC CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 549,598, dated November 12, 1895.

Application filed February 13, 1895. Serial No. 538,255. (No model.)

To all whom it may concern:

Be it known that I, JONATHAN P. B. FISKE, a resident of Alliance, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Electric Controllers; and I do hereby 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.

My invention relates to an improvement in controllers for electric motors, the object of the invention being to produce a controller for electric motors, viz: a combined rheostat or variable resistance and reversing-switch, which shall be simple and compact in construction, sure in operation, and effectual in all respects in the performance of its functions.

A further object is to produce a rheostat or variable resistance composed of a single coil and to connect the convolutions of said coil with contact-plates so arranged that the resistance will be gradually switched out of circuit whether the contact-brush be moved in one direction or the other from a central position.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view illustrating my improvements. Figs. 2 and 3 are views illustrating modifications.

A represents a frame of any preferred form of construction for supporting the parts of my improved controller. This frame supports a variable resistance B, which is preferably made of metallic ribbon of suitable material, such as German silver, or round wire, if desired, wound in the form of a flat coil with insulating material between the convolutions. A plate or contact-board C of insulating material extends across the face of the coil B and is secured thereto or to the frame A in any preferred manner. To the contact board or plate C two series 1 2 of contact-plates are secured at the respective sides of the center of said insulating board or plate. The contact-plates 1 are successively connected with the successive convolutions of the

coil B at one side of the center or vertical diameter thereof by means of connectors 3, and the series 2 of contact-plates are in a similar manner electrically connected with the convolutions of the coil at the opposite side of its center or vertical diameter.

An operating-lever D is pivoted at *a* to the frame A and provided with a brush or other contact device E, adapted when the lever is turned on its pivot to move over one or the other set of contact-plates 1 2, and it will thus be seen that when the lever D is turned in either one or the other direction the variable resistance will be gradually switched out of circuit.

The end *b* of the lever D enters the forked or bifurcated end of a lever E', pivoted at *c*, and to the opposite end of the lever E' a cross-bar 4 is connected. The respective ends of the cross-bar 4 are pivotally connected to the pivoted arms 5 5 of a reversing-switch, and said arms are adapted to make electrical contact with contact-plates *d e* or *e f*, according to the direction in which the motor with which the controller is connected is to run.

One of the switch-arms 5 is connected with one terminal of the field-magnet coils *g* of a motor and the other switch-arm 5 is connected with the other terminal of the resistance-coil B. The lever D is included in the line-circuit.

The contact-plates *d f* are electrically connected together and with one terminal of the armature-circuit, while the other armature terminal is connected with the contact-plate *e*.

From this construction and arrangement of parts it will be seen that when the lever D is turned in one direction the reversing-switch will be shifted to cause the current to pass through the armature-winding in one direction and that during the continued movement of the lever the variable resistance will be gradually switched out of circuit. Should it be desired to reverse the direction of rotation of the motor-armature, the lever D will be moved in the reverse direction, first gradually throwing the variable resistance into circuit, then operating the reversing-switch to change the direction of the current through the armature, and then, as the lever D passes its normal position, again gradually cutting out the variable resistance.

My improvements are very simple in construction, compact in form, and sure in operation.

Instead of connecting one set of contact-plates 1 with convolutions of the coil B at one side of the center or diameter of said coil and the other set of contact-plates 2 with the convolutions of the coil at the other side of the center or diameter of the coil said contact-plates may be connected in pairs with the convolutions of the coils at one side only of the diameter of the coil, as shown in Fig. 2—that is to say, each plate of the series 1 will be connected with the coil B at the same point as the corresponding plate of the series 2.

In Fig. 3 the contact-plates 1 2 are arranged in the same manner as above explained; but the series 1 only of the plates is connected with the convolutions of the coil, the series 2 of plates being electrically connected with the series 1 by means of cross connections *b'*.

Other slight changes might be made in the details of construction of my invention without departing from the spirit thereof or limiting its scope, and hence I do not wish to limit myself to the precise details of construction herein set forth; but,

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

1. The combination with a flat coil of resistance material having insulation between its convolutions, of two sets of contact plates disposed parallel with one face of said coil, connections between both sets of contacts and the convolutions of the coil, and a contact

device constructed and adapted to be moved over either set of contact plates, substantially as set forth.

2. The combination with a flat coil of resistance material having insulation interposed between its convolutions, of a board or plate disposed parallel with one face of said coil and projecting in opposite directions from the axis thereof, two sets of contacts on said board or plate connected with the convolutions of the coil, one set of contacts at each side of the axial center of the coil, and a contact device constructed and adapted to be moved over either set of contacts, substantially as set forth.

3. In an electric controller, the combination with a frame, of a flat coil of resistance ribbon secured thereto and having insulating material between its convolutions, a curved board or plate disposed parallel with one face of said coil and projecting in both directions from the axis thereof, two sets of contacts on said board or plate connected with the convolutions of the coil, one set of contacts at each side of the axial center of the coil, a pivoted lever carrying a brush between its ends to engage said contacts, a reversing switch and a connection between said lever and reversing switch, substantially as set forth.

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

JONATHAN P. B. FISKE.

Witnesses:

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