

(No Model.)

A. E. DU BOIS-REYMOND.
ROTARY FIELD MOTOR.

No. 545,853.

Patented Sept. 3, 1895.

Fig. 2.

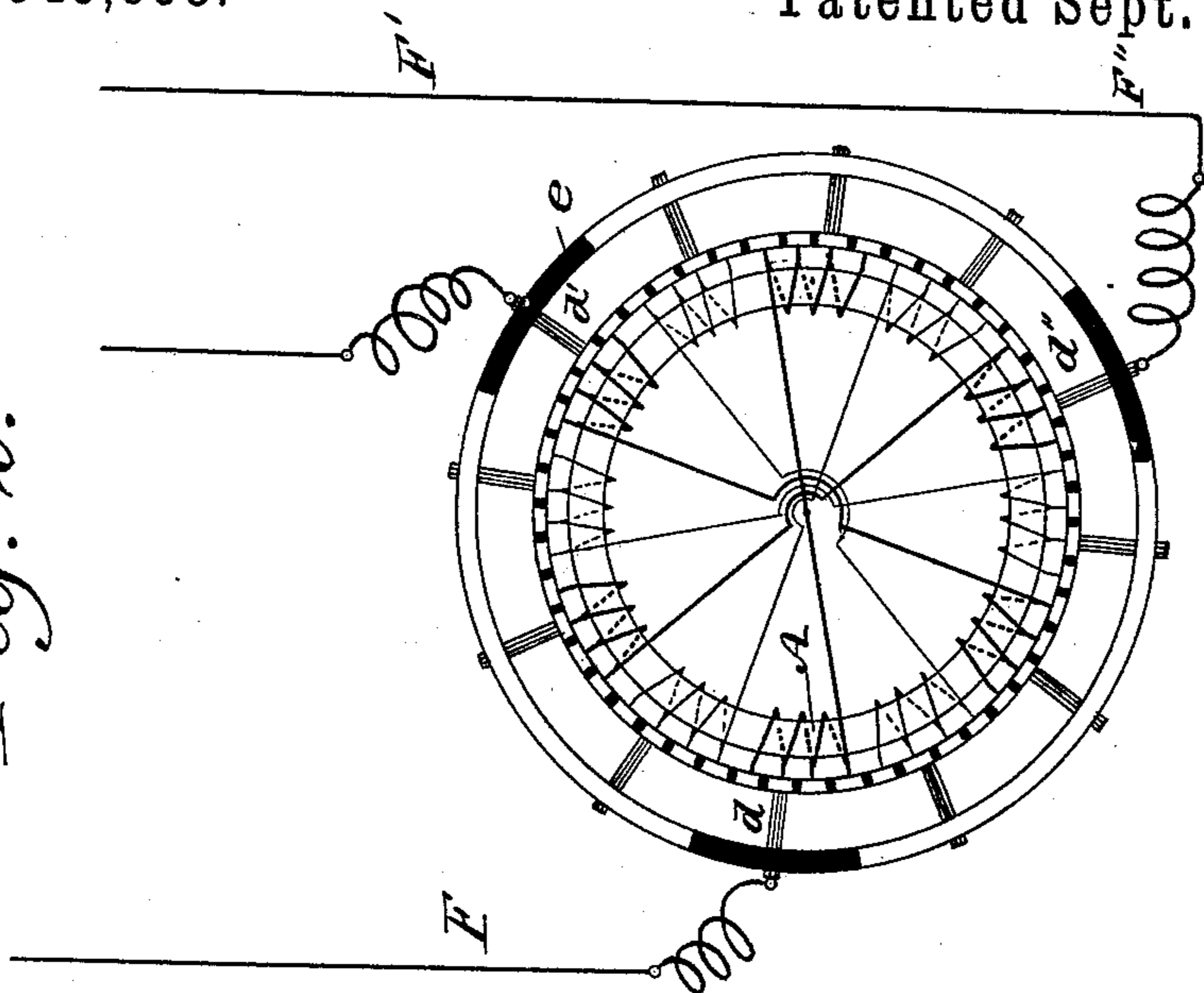
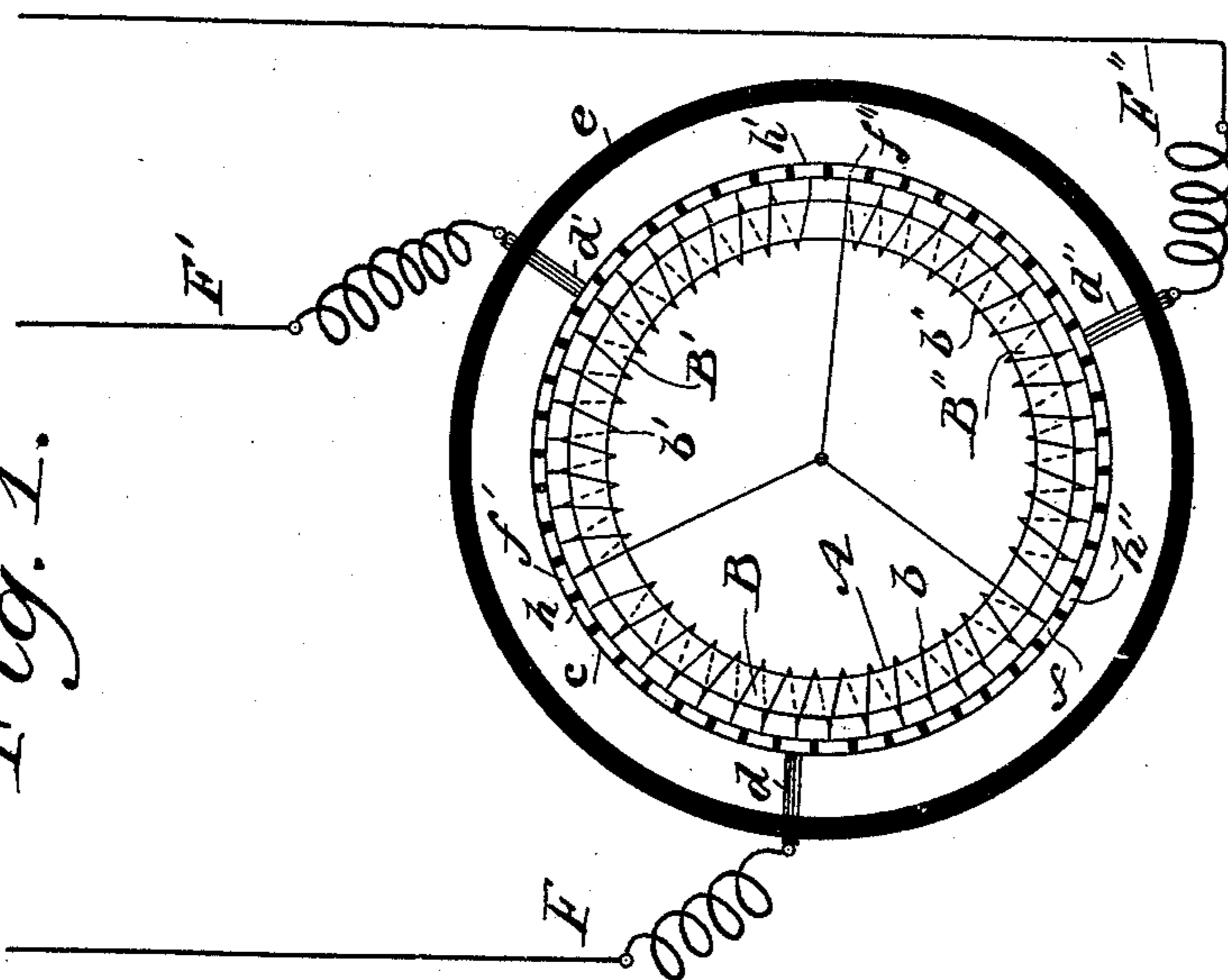


Fig. 1.



WITNESSES:

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ALARD E. DU BOIS-REYMOND, OF BERLIN, GERMANY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE SIEMENS & HALSKE ELECTRIC COMPANY OF AMERICA, OF CHICAGO, ILLINOIS.

ROTARY FIELD-MOTOR.

SPECIFICATION forming part of Letters Patent No. 545,853, dated September 3, 1895.

Application filed December 26, 1893. Serial No. 494,688. (No model.) Patented in Germany May 27, 1893, No. 68,411.

To all whom it may concern:

Be it known that I, ALARD E. DU BOIS-REYMOND, a subject of the Emperor of Germany, residing at Berlin, in the German Empire, have invented new and useful Improvements in Rotary Current-Motors, (for which I have obtained Letters Patent in Germany, No. 68,411, dated May 27, 1893,) of which the following is a specification.

My invention relates to rotary current-machines in general, and more particularly to the regulation of the effective energy thereof, irrespective of the current applied. If a number of rotary current-motors are to be operated in series, or if a rotary current-motor is to be operated with varying effective energy, but with a constant strength of current, the question of the most advantageous method of changing the tension of the current at the terminals of the motor from zero to its maximum value arises. The usual means employed to attain this object when operating a system of constant tension is to introduce resistance into the working circuits. This, however, cannot be done in the present instance, for the reason that the potentials at the terminals of the motor would not be affected thereby.

This my present invention consists in the method and means for regulating a rotary current-machine through the alterations in the lengths of the windings thereof, irrespective of the current transmitted, by dividing each of the several windings of the fixed member thereof into a series of separate sections having the desired numbers of convolutions, their adjacent ends being electrically connected by means of contact-strips arranged to be borne against by contacts in electrical relation to the working conductors of a distributing system, the said contacts having means whereby they may be shifted relative to the said strips.

In the accompanying drawings, forming a part of this specification, and in which similar letters of reference indicate like parts in the several figures thereof, Figure 1 is a diagrammatical representation of the fixed member of a three-coil machine and its regulating mechanism as it may be arranged in accordance with my invention. Fig. 2 is a similar

representation of a machine in which twelve coils are used.

Referring now to the drawings, and more particularly to Fig. 1 thereof, which shows my invention as applied to a three-coil motor, A represents the fixed member of a machine having its windings, consisting of three coils B B' B'', each involving a number of individual coils *b b' b''*, arranged in series, the adjacent ends of each pair of coils being connected through the medium of a fixed contact piece or strip *c*, arranged conveniently to the said member in such a position as to be borne against by brushes *d d' d''*, having electrical connection with their respective feeder-conductors F F' F''.

In the drawings I have shown the several brushes *d d' d''* as attached to a common insulated carrier *e*, arranged concentrically with the machine, the contact-strips being secured directly to and transversely of the fixed member A of the machine. As shown, the carrier is of such diameter as to enable the use of the usual brushes and the adjustment thereof to compensate for wear, the said carrier being pivotally hung. A lever or suitable gearing automatically or manually operated may be arranged to shift the carrier, and thereby to transmit to the brushes thereon a movement peripherally relative to the fixed member of the machine, thus varying the lengths of windings of the said member through the medium of the contact-strips. It will thus be readily seen that by shifting the brushes from what may be termed the "zero points" *f, f', and f''* respectively, in a direction to traverse their respective segments B, B', and B'' of the fixed member of the machine a greater number of convolutions may be included in the circuit of the windings of the machine as each successive contact-strip *c* is borne against by its brush, with the result that the efficiency of the machine is increased until the final strips *h, h', and h''* are reached, when by reversing the movement of the shifting mechanism the successive convolute sections of the winding may be removed from the circuit, and thus their energizing effect will be annihilated.

In Fig. 2 of the drawings I have shown this same principle as applied to a twelve-coil ma-

chine. It is evident to those skilled in the art that this my invention may be applied to a dynamo-machine as well as to a motor, and that the particular form of the brush-carrier, 5 as well as its shifting mechanism, may be altered at will without departing in any manner from the spirit of my invention.

A very desirable carrier may be constructed in the form of a star and arranged concentrically with the machine, the brushes being 10 secured to a series of bars arranged perpendicularly to the arms of the said star and extending to inclose the machine.

I claim—

15 1. In a rotary current motor the combination with a number of coils each connected at intermediate points with a number of contact terminals, said contact terminals being arranged in a circle, of a number of brushes, 20 one for each coil, mounted to be moved over said terminals and adapted to make contact with corresponding terminals of the several

coils whereby the effective lengths of the several coils may be varied at will, substantially 25 as described.

2. In a rotary current motor, the combination with a ring member wound with a number of coils, of a series of contact terminals connected with each of said coils at intermediate points, said contact terminals being arranged in a circle, and brushes or contact 30 devices mounted in fixed relative positions and adapted to be moved over said terminals to make contact with the corresponding terminals of the several coils whereby the lengths 35 of the respective terminals may be varied, substantially as described.

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

ALARD E. DU BOIS-REYMOND.

Witnesses:

OSCAR BIELEFELD,
JOHN B. JACKSON.