

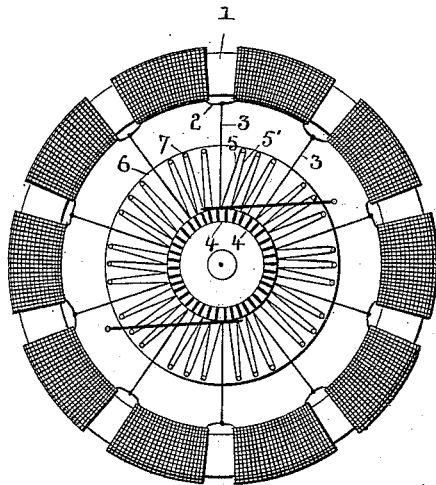
(No Model.)

T. A. EDISON.

ARMATURE CONNECTION FOR MOTORS OR GENERATORS.

No. 465,970.

Patented Dec. 29, 1891.



Witnesses

Norris A. Clark.
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UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY.

ARMATURE CONNECTION FOR MOTORS OR GENERATORS.

SPECIFICATION forming part of Letters Patent No. 465,970, dated December 29, 1891.

Application filed March 26, 1891. Serial No. 386,641. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the county of Essex and State of New Jersey, (Case No. 917,) have invented a certain new and useful Improvement in Motor-Armature Connections, of which the following is a specification.

In my patent, No. 276,233, is set forth the use of current-collectors for electrical generators and motors of high resistances, whereby the local current set up when a current-collector bridges the commutator-bars is weak and little or no spark is produced by the breaking of the local circuit.

This invention relates to different means for producing the same result; and it consists, mainly, in using commutator-segments divided into several sections connected together through the high-resistance conductors and connecting the coils of the armature to the first section of each segment, as hereinafter described, whereby the several resistances between the sections are thrown into circuit in series one after the other; and the invention consists, also, in certain combinations hereinafter specifically set forth.

In my patent, No. 293,955, I have described an arrangement for throwing in resistance at the moment when the commutator-brushes are passing from one segment to another. The commutator-segments are in sections, and each section is connected to a wire of the armature-coil through a resistance-conductor. Three sections are shown in each segment, and three conductors extend from the three sections to a single point in the armature-wire. When the brush in passing over a segment connects the first two sections, two of the resistance-conductors will be in circuit in multiple arc. The same will be true when the brush connects the second and third sections, and if the brush should connect the three sections, three resistance-conductors would be placed in multiple arc; but when the brush leaves the last section only one resistance-conductor will be in circuit, and consequently the resistance will be much higher, whereby the spark is lessened or prevented. This arrangement requires a large amount of resistance-wire, since when the highest resistance is desired a large part of said wire is out of

circuit and idle, thereby adding to the expense of the machine.

The present invention, while generically the same as that just described, provides an improvement in which the resistance-conductors connected to the several sections are thrown into circuit in series one after the other, so that none of the resistance-wire is out of circuit and idle at the moment when the brush leaves the last section, and on the other hand all of the resistance-wire of a segment is out of circuit when the brush passes onto the first section. This arrangement effects a considerable saving in resistance-conductors and is otherwise advantageous.

In the accompanying drawing the figure illustrates an armature with the improved commutator connection.

1 is the armature-ring, on which the wire 2 is wound, preferably as in the ordinary Grammering armature.

3 are resistance-conductors extending from the armature-wire to the strip or piece 4, which is the first of four sections which constitute a segment of the commutator-cylinder. These sections are insulated from each other, but are connected by German-silver or other resistance conductors 5 5'. I prefer to support the resistance-wires by means of an insulating plate or disk 6, near the edge of which are pins, hooks, or other devices for securing the wires, which are passed from the first section over one of said devices to the second section, from the second section to the succeeding device and to the third section, and so on. It is evident that these connecting resistance-conductors may be differently arranged.

The commutator may be constructed of any suitable materials and in any suitable shape.

What I claim is—

1. The combination of an armature-coil, a commutator having commutator-segments in sections separated from each other, but connected through resistance-conductors, and conductors connecting the armature-coil with the first section of each segment, whereby as the commutator moves relatively to the commutator-brushes the resistances between the sections are thrown into circuit in series one after another, substantially as described.

2. The combination of an armature-coil, a commutator having commutator-segments in

sections connected electrically through resistance-conductors, and conductors connecting the armature-coil with the first section of each segment, the last section of each segment
5 being disconnected from the first section of the following segment and from the armature-coil, except through said connecting resistance-conductors, substantially as described

3. The combination of an armature, a com-
10 mutator-cylinder having several segments in sections, the sections being insulated from each other, a conductor from the armature-coil to the first section of each segment, a
15 plate or disk having devices for securing wires thereto, and a resistance-conductor from the first section of each segment to one of said

devices and back to the second section, and so on for succeeding sections, substantially as described.

4. The combination, with an armature, a com- 20
mutator-cylinder, and commutator-brushes, of several sections of resistance-conductor, and means for throwing all said sections into
25 circuit in series as a brush leaves a segment, substantially as described.

This specification signed and witnessed this
20th day of March, 1891.

THOS. A. EDISON.

Witnesses:

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