

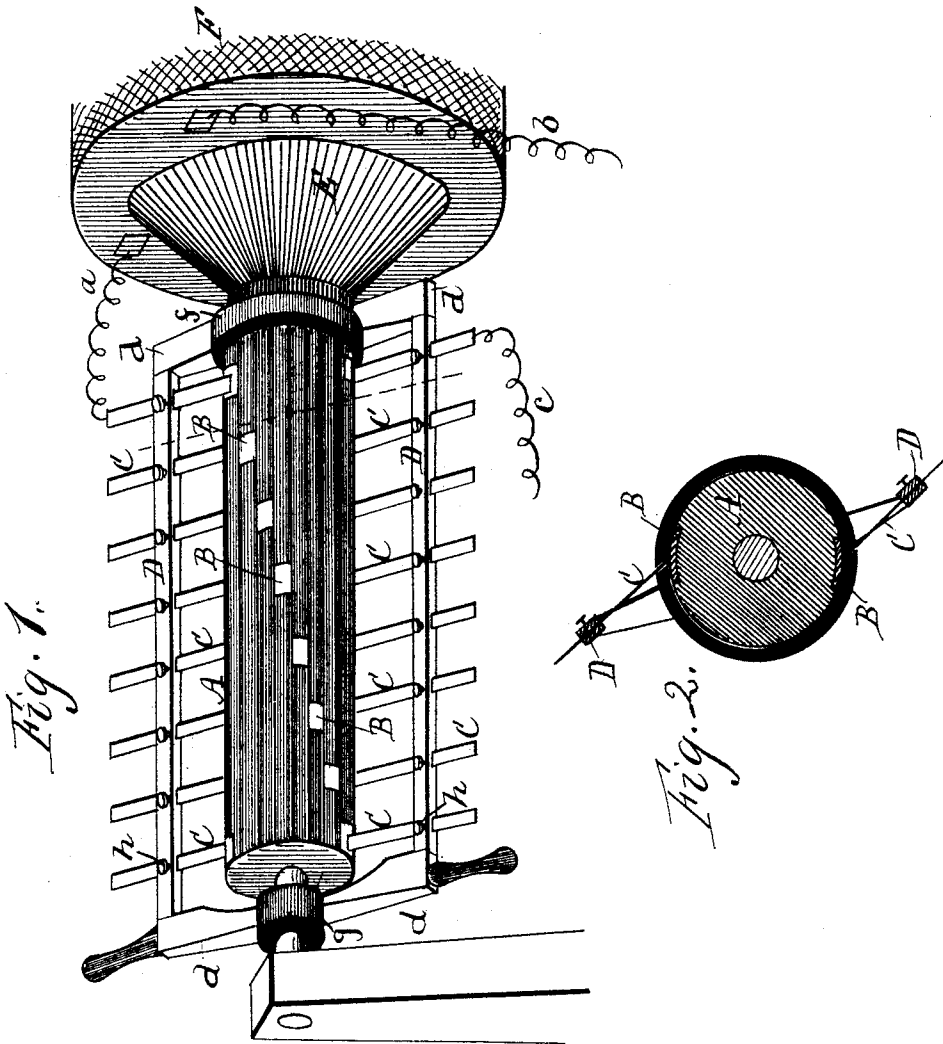
(No Model.)

M. W. HASSAN.

COMMUTATOR FOR ELECTRIC GENERATORS OR MOTORS.

No. 497,123.

Patented May 9, 1893.



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COMMUTATOR FOR ELECTRIC GENERATORS OR MOTORS.

SPECIFICATION forming part of Letters Patent No. 497,123, dated May 9, 1893.

Application filed March 16, 1892. Serial No. 425,185. (No model.)

To all whom it may concern:

Be it known that I, MIDBURY W. HASSAN, of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Commutators for Electric Generators or Motors; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the drawings accompanying this specification.

My improvement relates to commutators for electric generators and motors employing direct or continuous currents in the transmission of power to considerable distances. The chief difficulty in using such currents is that the commutator will not stand the high pressure of the current. The segments are so near together that the current will jump from segment to segment forming arcs and short circuiting the various loops of winding in the armature, and thus destroying the efficiency of the generator or motor. It is not practicable under present conditions to increase the diameter of the commutator. What is sought is to increase the area of insulation between the segments, and in order to preserve the comparatively small diameter of the commutator now in use it is lengthened axially and the segments are arranged in sets spirally around the same from end to end, thus affording a large insulated surface between them—much larger than where the conducting surfaces are arranged in rings. Of course this arrangement requires an increase in the number of brushes, as one pair—upper and lower—is required for each loop in the armature winding. One pair of brushes is always in contact with a corresponding pair of the segments, and the brushes on each side are all connected with a common holder, so that the current will pass at all times.

Commutators of the kind above described, provided with separate and opposing conducting plates, are already known, and my invention consists in the combination, with such a commutator, of a series of brushes and brush bars of peculiar construction, as will be more fully described and embodied in the claim.

In the accompanying drawings, Figure 1 is a perspective view of my improved commutator, and Fig. 2 a cross section of the same.

A indicates the commutator, which is of usual form, except that it is extended longitudinally and is much longer than the ordinary commutator, to give space for the spirally arranged segments.

B B B indicate the two sets of segments, the same consisting of conducting plates set into the insulated surface of the commutator and arranged in spiral form around the commutator from end to end as shown. By this means the insulated spaces between the segments are greatly extended over those of the ordinary commutator where rings are used. There is therefore less danger of the current jumping from segment to segment and short circuiting the loops of winding in the armature.

C C are the brushes, one set on each side of the commutator, the number in each set corresponding with the number of segments of the commutator. They are so arranged that they come in successive contact with the segments—that is, one pair of brushes one on each side is in contact with a pair of segments at the same time, thereby insuring a circuit, and before this pair leaves contact another pair comes in contact with another pair of segments preserving the continuity of the circuit. Each set of brushes is attached to a conducting bar D, which serves as a common conductor to the whole set.

It will be seen that the bars D D rest in diametrically opposite positions, inclosing the commutator, extending the whole length, and are connected by cross pieces *d d* at the ends, one cross piece having an insulated ring *f* resting around the commutator, and the other a similar insulated ring *g* resting around its shaft. The brushes are attached in regular order by set screws *h h* by which they are readily adjusted to fit the segments, which, by reason of their spiral arrangement on the cylinder are more difficult to fit than if they were in a straight line.

E indicates the armature and F the field magnet. The circuit is completed by means of the wires *a b c*.

The drawings show a stationary field magnet and a revolving armature. The invention is equally applicable to a stationary armature and a revolving field.

Having described my invention I do not

claim broadly a commutator consisting of an elongated cylinder having separate conducting strips arranged spirally and insulated from each other. Neither do I claim broadly
5 a series of brushes used in connection with such strips.

What I claim as new, and desire to secure by Letters Patent, is—

10 The combination, with the commutator consisting of a cylinder provided with conducting strips arranged in two spiral series diametrically opposite each other, of the brush bars on opposite sides connected by cross

pieces at the ends and provided with insulated rings resting on the commutator and its 15 shaft, and two series of brushes attached to said bars by set screws, as shown and described and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing 20 witnesses.

MIDBURY W. HASSAN.

Witnesses:

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