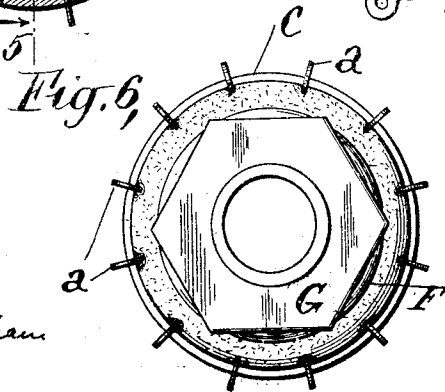
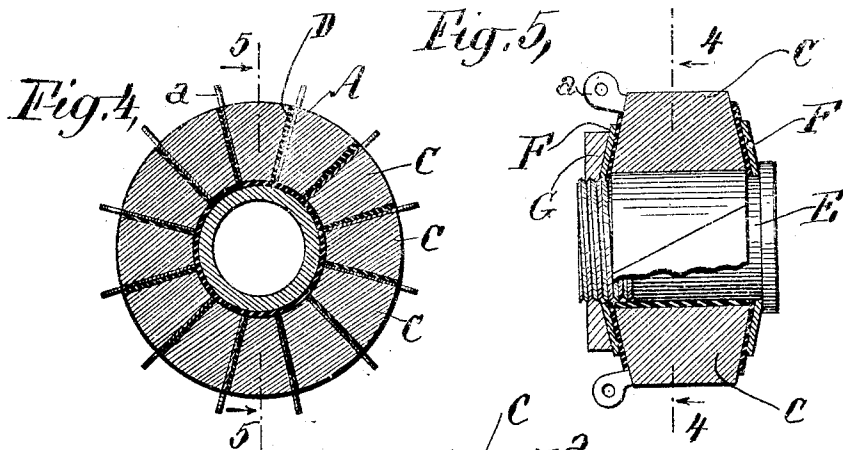
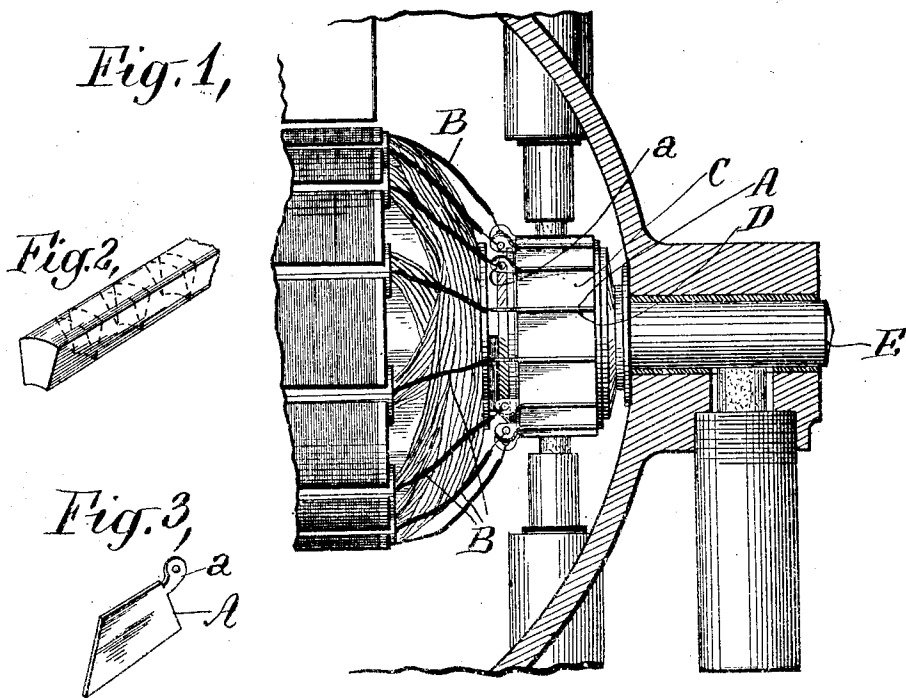


958,405.

Patented May 17, 1910.



WITNESSES:
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INVENTOR
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COMMUTATOR.

958,405.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed May 13, 1909. Serial No. 495,653.

To all whom it may concern:

Be it known that I, HARRY T. JOHNSON, a citizen of the United States, and a resident of the borough of Manhattan, city, county, and State of New York, have made certain new and useful Improvements in Commutators; of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to commutators for electric generators and motors and the object thereof is to simplify their construction and reduce the cost of manufacture and also to facilitate the electrical connection of the armature coils to the commutator strips or segments.

In the accompanying drawings, in which I have shown a preferred form of my invention, Figure 1 is a view partly in section of one end of a dynamo or motor embodying my invention; Fig. 2 is a perspective view, showing the manner in which the commutator strips are formed; Fig. 3 is a perspective view of one of the connectors; Fig. 4 is a cross section of the commutator on the line 4—4, (Fig. 5); Fig. 5 is a longitudinal section thereof on the line 5—5, (Fig. 4), and Fig. 6 is an end elevation.

Similar reference characters are employed to designate like parts in all the views.

My invention is adapted to motors and dynamos generally, irrespective of size; but its advantages are perhaps more fully realized in small machines, such for instance, as fan motors, where the cost of the labor required in making, assembling and connecting the commutator parts is relatively much greater than in larger machines.

Heretofore the commutator strips have usually been formed with integral lugs for the connection of the armature coil terminals; and such lugs are commonly coincident in width with the body of the commutator strips. The making of the strips in this manner necessitates the employment of expensive automatic machinery or of considerable tool work or both, and in any event of skilled and high priced labor.

My invention obviates the necessity of forming the commutator strips with integral connecting lugs, and consists in the employment of separately formed conducting sheets or connectors A, (Fig. 3), provided with lugs or ears *a*, to which the terminals

B, of the armature coils are directly attached. The connectors A are placed between adjacent commutator strips or segments C, so that their sides lie in planes radial to the armature shaft. One side of each connector is held in metallic contact with one side of a commutator strip, and is insulated from the next strip by a sheet of insulating material D.

The connectors A preferably coincide in outline with the commutator strips, but are made of thin sheet metal which enables them to be stamped out with great rapidity by simple and inexpensive machinery and by unskilled labor. The commutator strips C are preferably cut from a bar of metal drawn to the proper form, (Fig. 2), and no other machine work, except the final truing up and polishing of the completed commutator is required. The lugs *a*, are apertured to receive the armature leads or terminals which may be held in place by soldering. This soldering of the leads to the connectors is facilitated by the distance between the lugs *a*, which is afforded by their thinness and which permits the convenient manipulation of the terminals and soldering implement.

In assembling the commutator, one of the connectors A, (Fig. 4), is placed in contact with each commutator strip C and an insulating separator D, is interposed between it and the next commutator strip. These members of the commutator are held in place on the armature shaft E, by clamping devices comprising washers F, and a lock nut G, and are insulated from the latter and the armature shaft in the usual manner. The clamping devices bind the members of the commutator firmly together and hold each connector in rigid, superficial contact with a commutator strip.

I claim:

1. In a commutator, the combination with the commutator strips, of connectors consisting of conducting metal sheets arranged between adjacent commutator strips and formed with lugs for the attachment of the armature coils, one of said connectors being held in contact with a commutator strip, and an insulating separator between such connector and the adjacent strip.

2. In a commutator, the combination with the commutator strips, of connectors consisting of thin conducting sheets, substan-

5 many connectors in contact with the commu-
tator strips, arranged between adjacent
strips, lugs carried by the connectors for the
attachment of the armature coils, and clamp-
ing devices common to all the connectors
and commutator strips for holding them in
position on the armature shaft with each

connector in contact with a commutator
strip.

HARRY T. JOHNSON.

Witnesses:

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