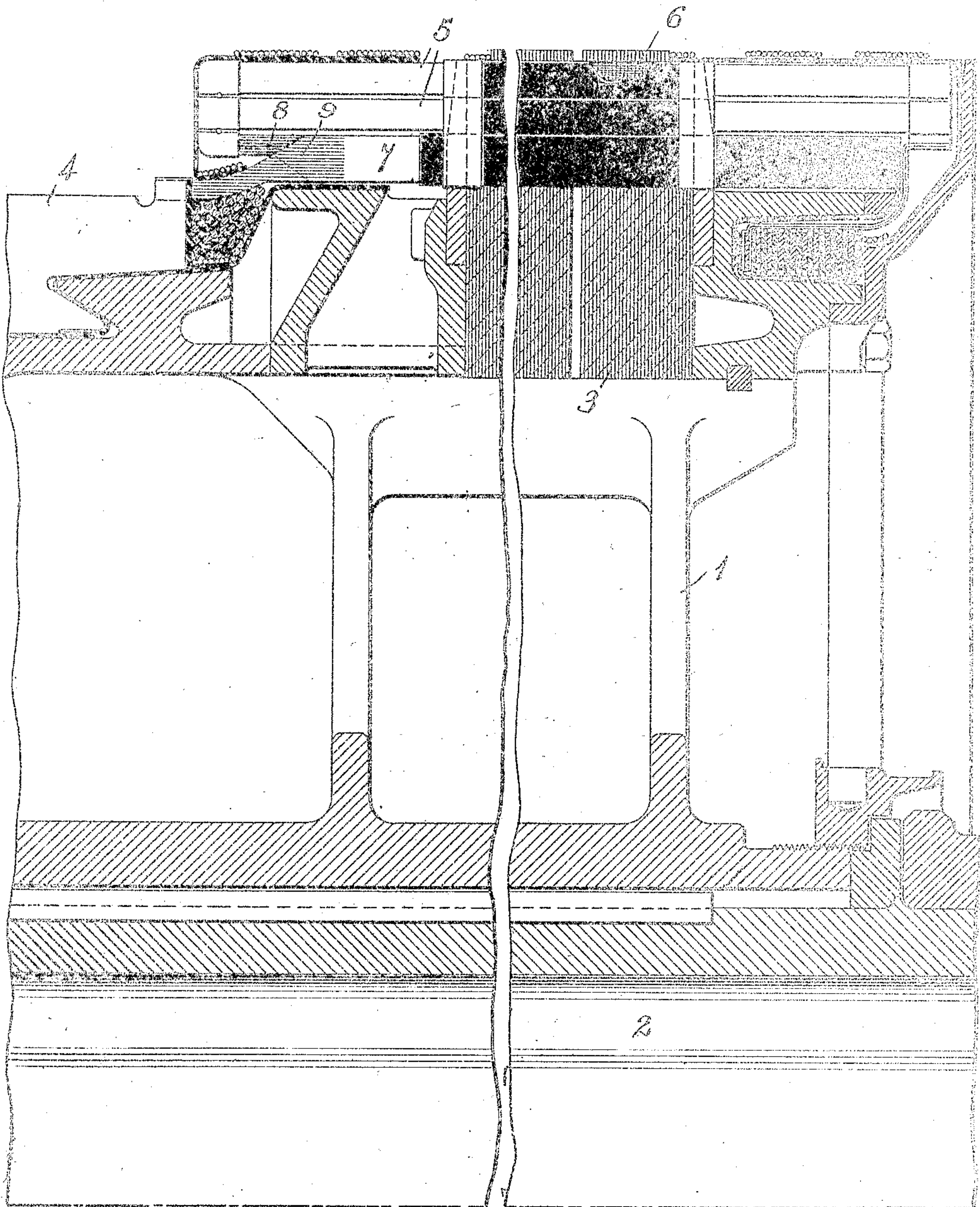


N. W. STORER.
ARMATURE WINDING FOR DYNAMO ELECTRIC MACHINES.
APPLICATION FILED MAR. 2, 1908.

975,478.

Patented Nov. 15, 1910.



WITNESSES:

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NORMAN W. STORER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, OF EAST PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

ARMATURE-WINDING FOR DYNAMO-ELECTRIC MACHINES.

975,478.

Specification of Letters Patent.

Patented Nov. 15, 1910.

Application filed March 2, 1908. Serial No. 418,897.

To all whom it may concern:

Be it known that I, NORMAN W. STORER, a citizen of the United States, and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Armature Windings for Dynamo-Electric Machines, of which the following is a specification.

My invention relates to armatures for dynamo-electric machines, and it has for its object to provide improved means for connecting armature coils to commutator cylinder segments, whereby excessive heating of the armature structure may be avoided.

In alternating current motors of the commutator type and in some other dynamo-electric machines, resistance conductors are frequently employed to connect the armature coils to the commutator segments for the purpose of introducing resistance into the local closed circuits that are formed when adjacent commutator segments are engaged by the brushes.

The resistance conductors are usually composed of German silver or other high-resistance material and are in the form of thin strips or ribbons which, in many cases, are doubled back upon themselves so that they cannot be conveniently connected to the commutator segments without first reducing their section. The resistance conductors are usually located in the armature core slots, under the winding, in order that the armature structure may assist in conveying away the heat that is generated in these portions, but the heat generated in the portions of the conductors that lie between the core structure and commutator cylinder cannot be readily dissipated.

In order to reduce the generation of heat, I increase the current-carrying capacity and reduce the resistance of the ends of the conductors which are adjacent to the commutator segments by coating them, preferably by an electro-plating process, with copper or other low resistance conducting material.

The single figure of the accompanying drawing is a sectional elevation of a portion of an armature of a dynamo-electric machine embodying my improved resistance conductors.

Referring to the drawing, the armature

comprises a spider 1 which is rotatably mounted on a shaft 2, a preferably laminated magnetizable core 3, a commutator 4 and a winding 5. The winding 5 comprises a plurality of coils which are partially located in slots 6 in the core member 3, in the usual manner, and are connected to the commutator segments by means of resistance conductors 7.

The resistance conductors, which are preferably of German silver or other relatively high-resistance conducting material, are in the form of ribbons or strips and are disposed beneath the armature coils in the core slots. The resistance ribbons or strips are relatively wide and are doubled back upon themselves so that it is desirable to reduce the section of each strip near its ends in order to facilitate its connection to the commutator segment and to prevent interference with the connector which joins its opposite end with one of the armature coils. Since a reduction in the section of a certain portion of each resistance ribbon diminishes the current-carrying capacity and increases the tendency for heating, I coat the ends of the strips with copper or other conducting material by an electro-plating process and, in this way, the current-carrying capacity of the ends is made somewhat greater than that of the body of the strips, instead of less, while the section of the strip is only increased by a very small amount.

The plated portions of the resistance strip 7 are indicated at 8 and 9 and it will be observed that, by this means, the current-carrying capacity of the strip will be increased and the heating reduced where the most difficulty in dissipating the heat is found. It is also desirable to increase the current-carrying capacity of these portions of the resistance conductors in order to avoid fusing the solder in the connectors which join the coils and the conductors and which are adjacent to the reduced section.

It is, of course, possible to provide a coating of low-resistance material in various ways, for example, by a dipping process or by soldering or riveting and brazing strips onto the flat surfaces of the resistance ribbons and, consequently, I desire that my invention shall not be restricted to any specific means for carrying it into effect.

I claim as my invention:

1. The combination with an armature winding, and a commutator cylinder, of resistance conductors interposed in circuit between the winding and the cylinder segments and having reduced end portions provided with means for increasing their conductivity.
2. The combination with an armature winding, and a commutator cylinder, of resistance conductors interposed in circuit between the winding and the cylinder segments and having reduced end portions provided with coatings of conducting material for increasing their conductivity.
3. A resistance conductor having portions of reduced section and coatings of rela-

tively high conductivity to increase the current-carrying capacity of said portions.

4. The combination with an armature winding, and a commutator cylinder, of resistance conductors interposed in circuit between the winding and the commutator cylinder segments, and having reduced end portions provided with electrolytically deposited copper coatings for increasing their conductivity.

In testimony whereof, I have hereunto subscribed my name this 10th day of Feby., 1908.

NORMAN W. STORER.

Witnesses:

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OTTO S. SCHAIRER.