

(No Model.)

W. GLASS.

ARMATURE FOR DYNAMO ELECTRIC MACHINES.

No. 247,632.

Patented Sept. 27, 1881.

Fig: 1.

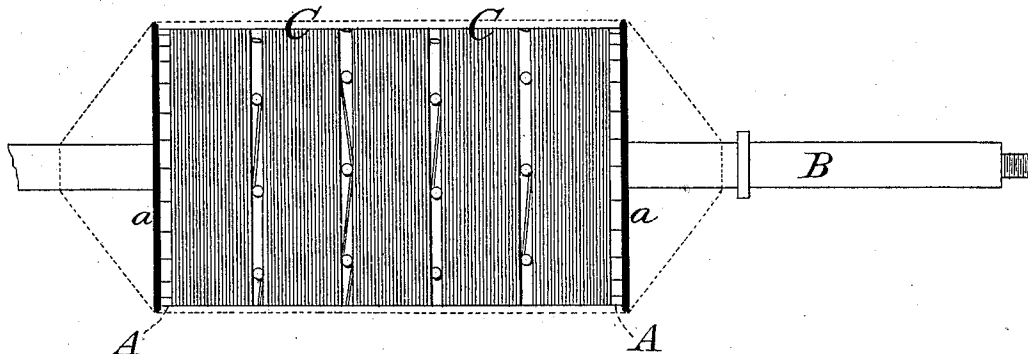


Fig: 2.

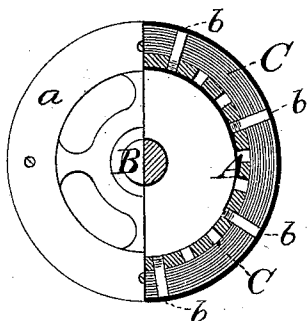
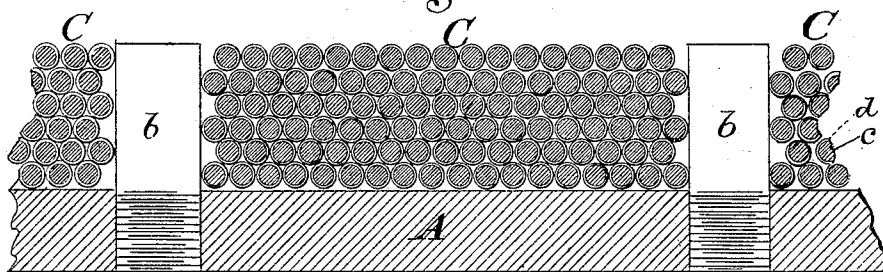


Fig: 3.



Witnesses;
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Inventor,
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UNITED STATES PATENT OFFICE.

WALTER GLASS, OF NEW YORK, N. Y.

ARMATURE FOR DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 247,632, dated September 27, 1881.

Application filed September 4, 1880. (No model.)

To all whom it may concern:

Be it known that I, WALTER GLASS, a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Armatures for Dynamo-Electric Generators, of which the following is a specification.

My invention relates to that class of dynamo-electric generators of which the well-known generator of Siemens is a type, in which the armature is formed by winding many convolutions of soft-iron wire circumferentially around the outside of a hollow cylinder of some suitable material at right angles, or practically so, to its axis. The iron wire thus wound on the cylinder constitutes the armature proper, and virtually forms an annular ring or series of rings surrounding the inner cylinder which serves to support it. The inducing-coils of insulated copper wire are then wound longitudinally around and on the outside of the armature, parallel to its axis and perpendicular to the direction of the iron wires of which the core is composed. When an armature thus constructed is mounted in such a manner as to be capable of being made to revolve rapidly within the field of force of one or more powerful stationary electro-magnets, currents of electricity of great electro-motive force and quantity are generated in the insulated copper wires with which the armature is surrounded, and by appropriate appliances are conducted away and utilized in any required manner.

My invention consists in preventing magnetic contact of the iron wires which constitute the armature proper, and which are wound transversely to its axis of revolution, by enveloping them with a thin layer of non-magnetic substance, by means of which the efficiency of the machine is materially increased.

In the accompanying drawings, Figure 1 is a longitudinal elevation of an armature forming a part of a dynamo-electric machine. Fig. 2 is a transverse elevation of the same, partly in section; and Fig. 3 is an enlarged sectional view of a portion of the armature, showing the details of its construction.

In the figures, A represents a hollow cylinder, which is constructed of any suitable ma-

terial—such as metal or wood—and is mounted upon a shaft, B, which is arranged to be driven by any suitable power. The armature proper, C C, consists of a great number of convolutions of soft-iron wire wound circumferentially or helically upon the cylinder A, as shown in the figures. The wire is preferably wound in several divisions or sections, which are separated by brass pins *b b*, these being screwed into the cylinder A.

The enlarged view of a portion of the armature in Fig. 3 clearly shows the arrangement of the iron wires of which it is composed. Each of these wires is composed of a core, *c*, Fig. 3, of soft iron, which is covered with a sheath or layer of non-magnetic substance, *d*. I prefer to make use of zinc for this purpose, for the reason that zinc-coated wire is easily obtained, being an ordinary commercial article.

It will be observed that each separate convolution of wire which constitutes the armature-ring C is separated from the adjacent convolutions by two thicknesses or layers of non-magnetic substance. The inducing-wire coils are wound upon the armature parallel with its axis, as indicated by the dotted lines. The advantage of this arrangement arises from the fact that the separate small masses of iron which collectively constitute the core acquire and lose their magnetism much more quickly than a solid mass of iron, and I have found by experience that when the several masses are separated by a substance which prevents actual magnetic contact between them the rapidity of the charge and discharge of the armature as a whole is materially facilitated.

It is well known that the electro-motive force of a dynamo-electric machine depends largely upon the rapidity of this action, and therefore its useful effect is greatly increased by the application of my improvement.

I do not claim an armature wound at right angles to its axis, the coils of which are not magnetically insulated from each other; nor do I claim an armature composed of separate straight wires laid parallel to the axis of revolution, instead of at right angles to it, but in which the individual wires are only partially insulated from each other.

I claim as my invention—

1. An armature for a dynamo-electric gen-

erator the core of which consists of a hollow cylindrical ring or series of rings composed of convolutions of iron wire, the wire of each convolution being coated with non-magnetic substance, substantially as hereinbefore set forth.

5 2. The combination, substantially as hereinbefore set forth, of a hollow cylinder, convolutions of iron wire wound circumferentially upon the outside of said cylinder at right angles
10 to its axis, and a continuous layer of non-magnetic substance enveloping the iron wire in such manner as to prevent magnetic contact between the several convolutions.

3. The combination, substantially as hereinbefore set forth, of the body of an armature, 15 constructed of non-magnetic material with coils of soft annealed-iron wire wound thereon and separated from each other in any suitable manner.

Signed by me this 27th day of August, A. 20
D. 1880.

WALTER GLASS.

Witnesses:

J. A. HYLAND,
MILLER C. EARL.