

No. 650,246.

Patented May 22, 1900.

G. HEIDEL.
ARMATURE FOR DYNAMO ELECTRIC MACHINES.

(Application filed Sept. 18, 1899.)

(No Model.)

Fig. I.

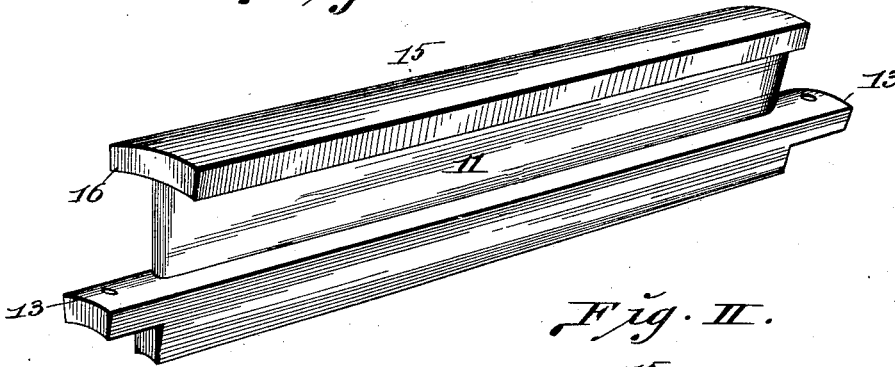


Fig. II.

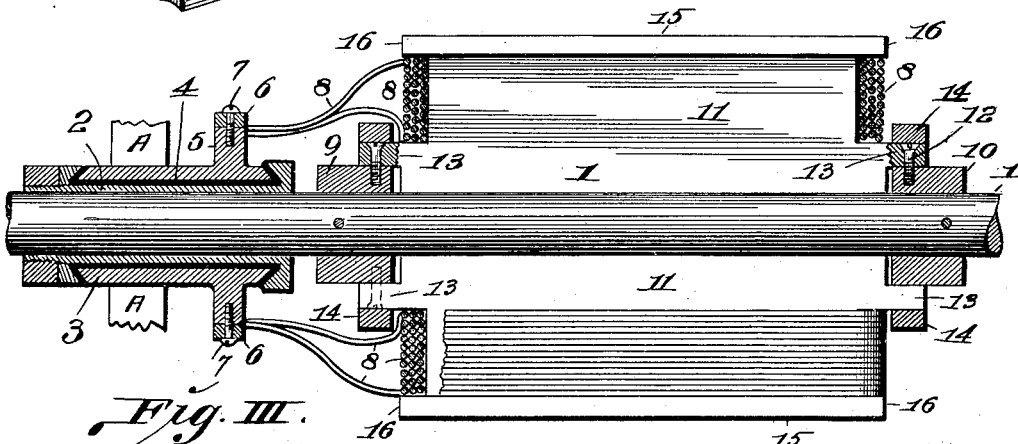


Fig. III.

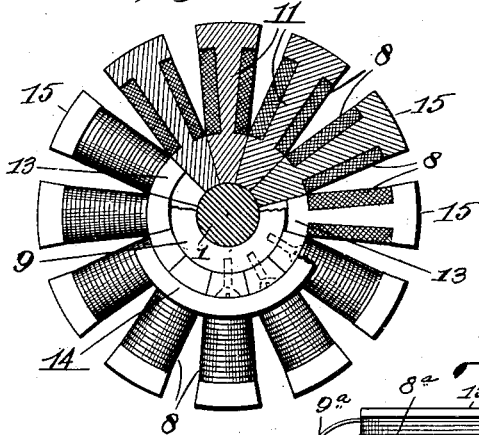


Fig. IV.

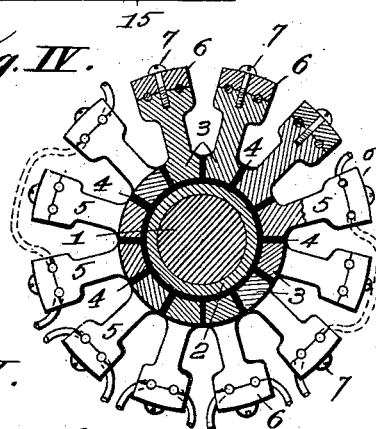
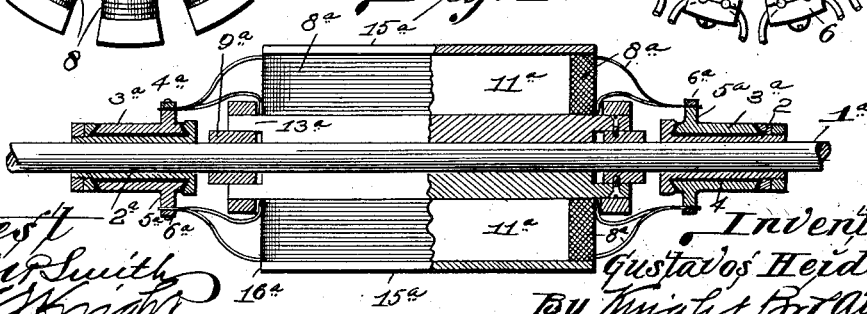


Fig. V.



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ARMATURE FOR DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 650,246, dated May 22, 1900.

Application filed September 18, 1899. Serial No. 730,800. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVOS HEIDEL, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Armatures for Dynamo-Electric Machines or Motors, 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 an armature having a plurality of removable core-sections extending longitudinally of the armature-shaft, each wound separately and having the ends of the winding-coils of each individual section connected independently to the commutator.

The object of this invention is to provide an armature which will not be incapacitated by the burning out or otherwise-disabled condition, but in which when a wire has burned out or become otherwise disabled the section to which said wire belongs may be cut out of circuit without affecting the other sections, thereby permitting a continued serviceability of the armature in a merely weakened condition owing to the disability of the section affected.

My invention consists in features of novelty hereinafter fully described, and pointed out in the claim.

Figure I is a perspective view of one of the section-cores of my improved armature. Fig. II is a longitudinal sectional view of the armature, showing two of the core-sections in elevation and the winding-coils thereof partly in section and partly in elevation. Fig. III is a view, partly in end elevation and partly in cross-section, through the armature. Fig. IV is an enlarged view, partly in elevation and partly in cross-section, of the commutator. Fig. V is a view, partly in section and partly in elevation, of a double armature.

1 designates the armature-shaft, provided with a sleeve 2, on which the commutator-sections 3 are mounted. The commutator-sections 3 are separated from the sleeve 2 and from each other by insulating material 4 and are adapted to receive the contact of the brushes A. Each commutator-section is provided with an arm 5, grooved at its outer end, as seen in Fig. IV. On each arm 5 is a cap

6, secured by means of a screw or other suitable means. Each cap 6 is provided with two grooves corresponding to the opposing grooves contained by the arms 5, thereby producing apertures for the reception of the terminals of the armature-winding wires 8, which are held in place between the caps and the commutator-arms.

9 and 10 designate collars fixed to the shaft 1. 11 designates core-sections on which the coil of armature-winding wire is wound, each core being provided with its individual winding. These core-sections are tapering at their inner edges, (see Fig. III,) and they are removably held to the armature-shaft by screws 12, that pass through arms 13 at the ends of the core-sections into the collars 9 and 10. The screws 12 are held from displacement by rings 14, that encircle the arms 13 and prevent the screws from breaking loose.

Each coil-section is formed with a contacting face 15 and an overhanging flange 16, between which and the arms 13 the coil of winding-wire 8 is wrapped. One of the terminals of each individual winding-coil wrapped on a core-section leads to the directly-opposing arm 5 of a commutator-section, and the other terminal leads to the next succeeding commutator-arm, and the same connection is continued throughout the armature, so as to connect all of the coils with the commutator in series. Should a wire of either of the armature-sections become disabled by being burned out or broken or otherwise, the said section is cut out of connection with the other sections by using a short yoke-wire, such as is illustrated in dotted lines in Fig. IV, the ends of which are connected to the commutator-arms desired to be connected together, thereby forming a circuit between the remaining serviceable armature-sections, so that the operation of the armature may be continued even though the interposed section has become dead and of no utility.

In Fig. V, I have shown a double armature of approximately the same construction as that shown in Figs. I to IV, inclusive, with the exception that two commutators are used instead of a single commutator. The parts of the double armature are designated by the same numerals as the parts heretofore described, with the addition of an affix "a."

In Fig. IV, I have illustrated a plurality of armature-sections cut out and the adjacent sections joined by the yoke-wires shown in dotted lines. It is obvious that a single section may be so cut out or any greater number as long as enough remain to render the armature serviceable, the sections being allowed to remain in place though dead.

When a section has become disabled and it is desired to remove and repair or rewind it, the section is removed and a yoke-wire inserted to connect the adjacent sections, in which event it is desirable to remove a section diametrically opposite in order to balance the armature and connect the sections adjacent by a second yoke-wire. The arma-

ture is thereby rendered similar in appearance to the well-known "shuttle-armature."

I claim as my invention—

An armature comprising a shaft, a series of core-sections, collars on said shaft to which said core-sections are removably secured, rings surrounding the ends of said sections, coils wrapped on said sections, a commutator, and means whereby the terminals of said coils are removably secured to said commutator, substantially as described.

GUSTAVOS HEIDEL.

In presence of—

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