(No Model.)

S. H. SHORT.

ARMATURE FOR ELECTRIC GENERATORS OR MOTORS.

No. 473,366. Patented Apr. 19, 1892.

FIG. III.

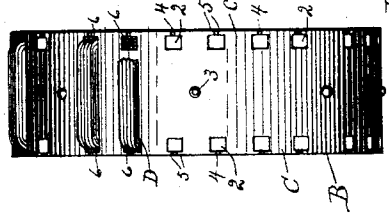


FIG. I.

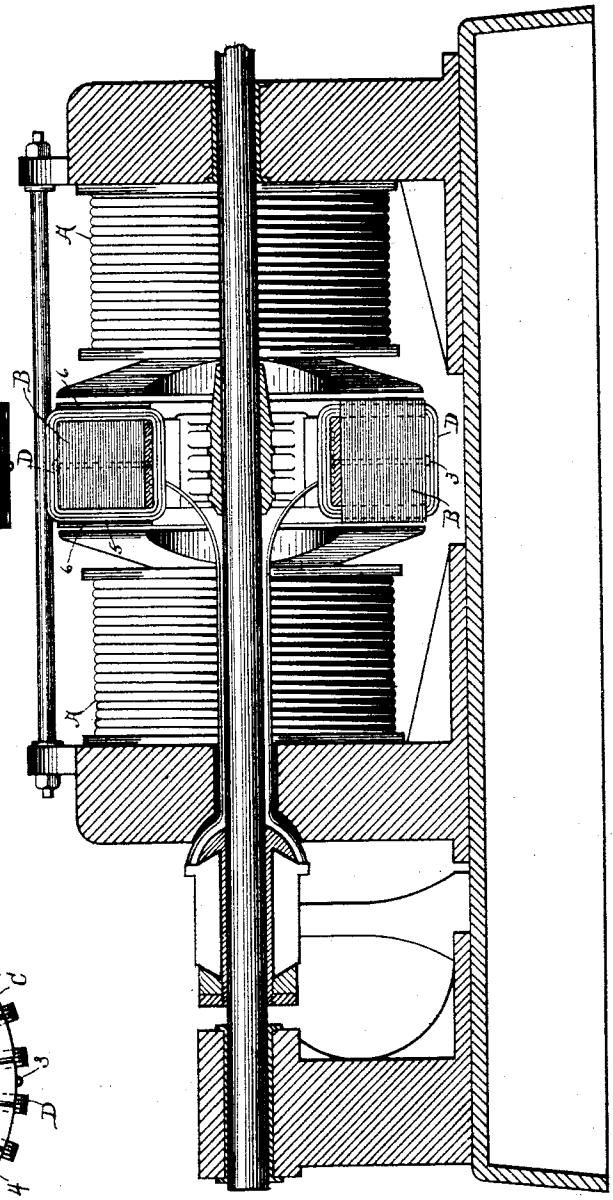
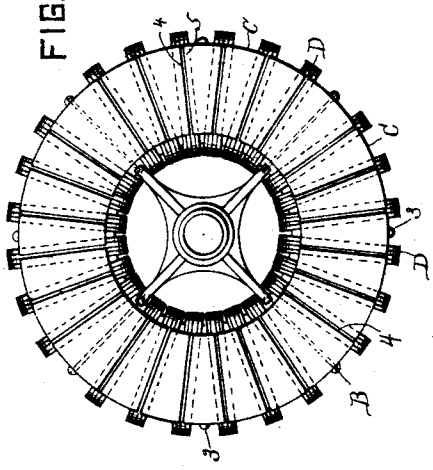


FIG. II.



Witnesses.

R. E. Auld.

G. F. Downing.

Inventor.

Sidney H. Short

By H. A. Seymour.

Attorney.

UNITED STATES PATENT OFFICE.

SIDNEY H. SHORT, OF CLEVELAND, OHIO.

ARMATURE FOR ELECTRIC GENERATORS OR MOTORS.

SPECIFICATION forming part of Letters Patent No. 473,366, dated April 19, 1892.

Application filed June 24, 1891. Serial No. 397,368. (No model.)

To all whom it may concern:

Be it known that I, SIDNEY H. SHORT, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Armatures for Electric Generators or Motors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to the armatures of dynamo-electrical machines for use as generators or as motors; and it has special reference to the toothed style of armature, in which the bobbins of insulated wire are separated from each other by teeth or projections integral with the core of the armature. In this style of armature it is desirable to have rectangular recesses for the reception of the bobbins, so as to facilitate the winding on, and in the toothed armatures with rectangular recesses, as heretofore constructed, the teeth, being separated from one another by gaps equal in width to the bobbins, induce disturbances in the field, which (particularly in the case of generators) may cause sparking at the commutator. In the present invention this disturbance is avoided or materially lessened by having magnetic material project over the outside of the rectangular bobbin-recesses, so that a narrower slot or opening is left between them, through which the bobbin-wire may be introduced for winding on. The ordinary rectangular form of the recesses being retained, the bobbins of rectangular cross-section are wound in place substantially as heretofore. The teeth may extend the full width of the armature face or faces, or they may extend only part way across the same. They may, in fact, be of any ordinary or suitable form and construction. The new or improved toothed core may be made solid or it may be laminated. The core itself holds the bobbins in place, so that binding-wires may be dispensed with. The teeth projecting beyond the bobbins constitute a protection thereto in case the armature should strike the field-poles, as may happen, say, in the propelling-motors of electric-railway cars. After the bobbin-wire has been wound on to form a bobbin or as many bobbins as it is desired to place between any two teeth it is convenient to insert a key which will lock the bobbin or bobbins firmly in place. This arrangement constitutes a special feature of invention.

The invention is applicable to different forms of ring and drum armatures.

In the accompanying drawings, which form part of this specification, Figure I is a central longitudinal section of a dynamo-electrical machine provided with an armature in accordance with the invention. Fig. II is a face view of the armature detached. Fig. III is a plan or edge view of the same with most of the bobbins omitted and one of them broken away.

In the machine shown in Figs. I to III the field-magnets A are presented to the sides of the armature. The laminated toothed core B of this armature is formed of a soft iron ribbon wound upon a foundation-ring and provided with recesses 2, punched therein, which register when the ribbon is wound on the foundation-ring. Any burr left by punching is removed by rolling or hammering. Rivets 3 hold the laminæ in place. The recesses 2 are rectangular, with narrower slots 4 in the outer edges of sufficient width to receive the bobbin-wire in winding on. When the core has been formed, the metal between the recesses 2 constitutes teeth C, which approach each other on the outside of the bobbin-spaces 2, forming projections 5. The bobbin-wire is wound on in the recesses 2 between the teeth C, being introduced through the narrower slots 4, and when a bobbin-space is full a key 6, of, say, mica, pasteboard, or the like, coated with cement, (as shellac, for example,) is introduced between the bobbin D and the projections 5 of the teeth C. The cement hardens and holds fast the key, which firmly locks the bobbin in place.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A ring-armature consisting of a laminated core having radial grooves extending through the core from its inner to its outer periphery at each of its sides, each groove being of sufficient size to receive a bobbin, narrow open slots being formed in the sides of the core and communicating with said grooves, said slots being of a width sufficient to allow of the insertion of a single strand of the bobbin, and means for closing the slots after the

bobbins have been secured in place, substantially as set forth.

2. A ring-armature consisting of a laminated core having radial grooves rectangular in cross-section extending through the core from its inner to its outer periphery and at each of its sides, each groove being of sufficient size to receive a bobbin, narrow slots being formed in the sides of the core and communicating with said grooves, said slots being of a width sufficient to allow of the insertion of a single strand of the bobbin, and insulating medium for closing the slots after the bobbins have been inserted in the radial grooves, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

SIDNEY H. SHORT.

Witnesses:
JOHN C. DOLPH,
J. H. GIBSON.