

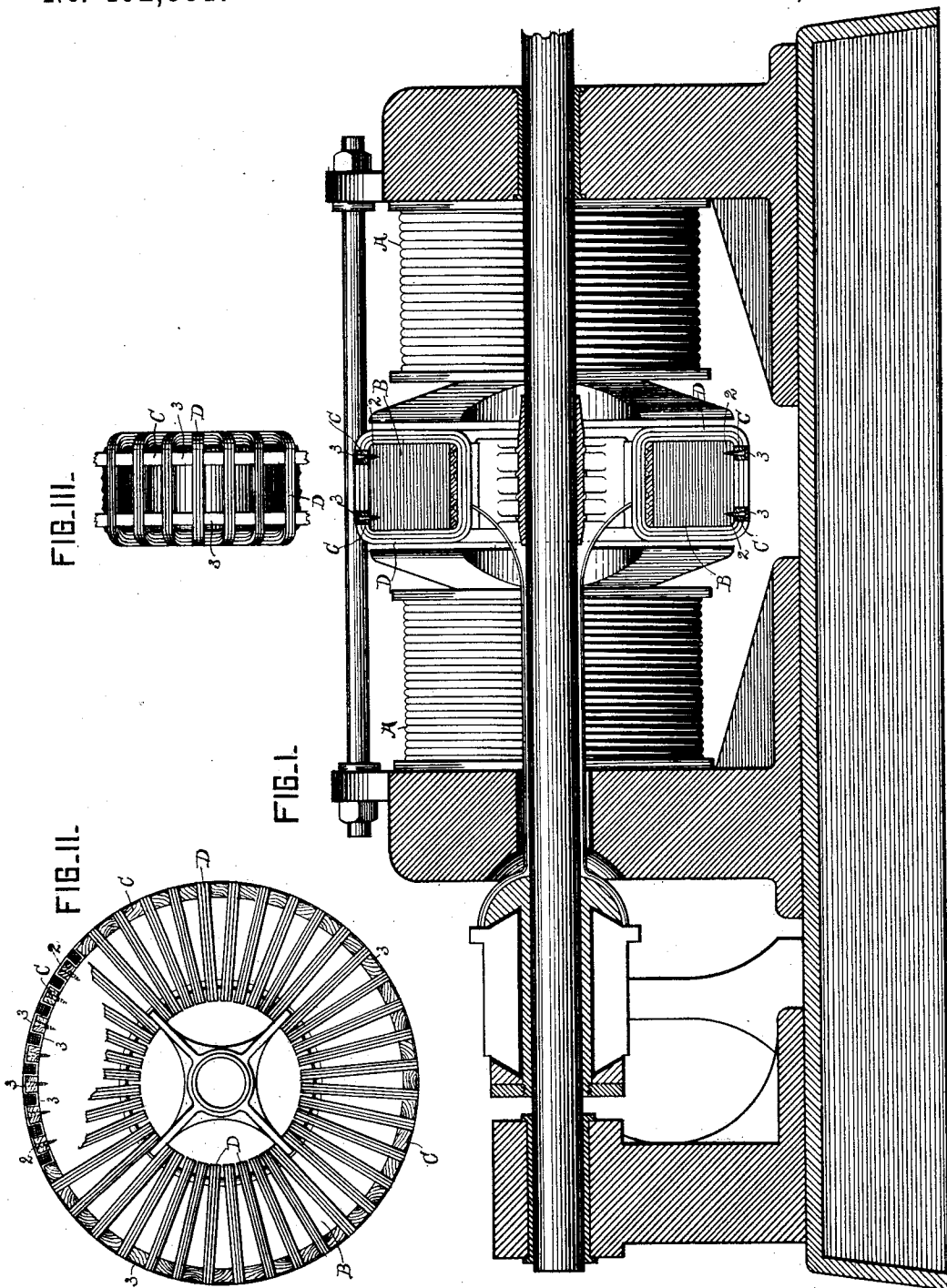
(No Model.)

S. H. SHORT.

ARMATURE FOR DYNAMO ELECTRIC GENERATORS.

No. 462,881.

Patented Nov. 10, 1891.



Witnesses

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ARMATURE FOR DYNAMO-ELECTRIC GENERATORS.

SPECIFICATION forming part of Letters Patent No. 462,881, dated November 10, 1891.

Application filed June 12, 1891. Serial No. 396,018. (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 Dynamo-Electric Generators; 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 more particularly to the armatures of dynamo-electric machines for use as generators; but the new and improved armatures may be used on motors, and each of the improvements constituting the invention is included for all the uses to which it may be adapted.

Heretofore two forms of armature have been employed—namely, the close-wound armature of the Gramme type and the toothed armature with bobbins wound between the teeth, which latter have been of magnetic material and integral with the armature-core. Each of these forms has certain advantages. Thus the toothed armatures (particularly in the ring type) are more easily wound, run cooler, and keep their bobbins more certainly in place; but they do not run so smoothly and are more apt to make the generators spark than the close-wound armatures, because as each tooth passes through the field it draws with it the lines of force until they fly back under the superior attraction of the succeeding tooth. There is thus a constant shifting back and forth of the field, which induces the sparking referred to. The new or improved armatures of the present invention possess advantages heretofore appropriate to each of said styles—to wit, the close-wound and the toothed—that is to say, they are easy to wind, run cool, hold their bobbins well in place, and run smoothly, or, in other words, avoid the tendency to induce sparking. In accordance with the said invention the armature is wound with bobbins, which are separated from each other by blocks of non-magnetic material. These space the bobbins like the magnetic teeth heretofore used, but do not disturb the field. They may take up the entire surface of the core not occupied by the bobbins; but it is of advantage and constitutes a special improvement to have them oc-

cupy part only of such surfaces, so as to leave vacant or air spaces between the bobbins. Such air-spaces may be formed with blocks which extend across the face of the armature; but it is a further improvement to employ blocks on a part only of such face, so as to leave larger or more numerous air-spaces. The blocks may be of any non-magnetic material; but it is preferred to use non-conducting material, wood being the most available for the purpose. Moreover, so far as I am aware, it is new, in general, to construct an armature with vacant or air spaces, such as herein shown, between the bobbins and separators, which occupy a portion only of the face or faces on which said separators are, (irrespective of the non-magnetic character of the said separators;) and the invention extends to such an armature, as well as covers the other features or combinations of features herein particularly pointed out and claimed.

In the accompanying drawings, which form a part of this specification, Figure I is a longitudinal central section of a dynamo-electric generator provided with an armature in accordance with the invention. Fig. II is a face view of the armature, and Fig. III is a plan or edge view of the same.

In the form of machine shown the field-magnets A are presented at the sides of the armature. The armature-core B may be solid or laminated or similarly constructed, (as of wire, for example.) It is shown as composed of a soft-iron ribbon wound upon itself on a foundation-ring, in which is a hub with spider arms fixed at the ends to the foundation-ring. On the core are the blocks or separators C, of non-magnetic material, (say wood or brass,) and between these the bobbins D of insulated wire are wound. The blocks are shown as applied to the periphery of the ring or core, and this position is considered advantageous for an armature, to the sides of which the field-poles are presented, as well as for an armature to the periphery of which the field-poles are presented; but the said blocks or separators could be applied to the lateral as well as to the peripheral face of the core, or to both. Instead of using one block only between adjacent bobbins, two are shown, one at each corner edge of the core. This is advanta-

geous, as bringing the blocks where the bobbins are least exposed to motion under the centrifugal force and where the said blocks best oppose movement of the bobbins on the core, while at the same leaving the bobbins as exposed as may be to the cooling influence of the air. The blocks are shown as fastened to the core, each by a screw 2, which is of wood or non-conducting material, so as not to establish a circuit for eddy-currents between the laminæ of the core, and a tape 3 runs over the tops of the blocks or separators and is held down between them by the bobbins D. Other convenient ways of securing the blocks in place could be employed, the invention extending, generally, to the armature provided with non-magnetic blocks or separators between the bobbins.

Having fully described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

A ring-armature consisting of a laminated core constructed of ribbon wound upon itself, bobbins wound around the core, and blocks or separators of non-magnetic material secured between the bobbins near the edges of the armature-core, thereby forming open air-spaces between the blocks and also insuring open air-spaces between the sides of the bobbins, 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.