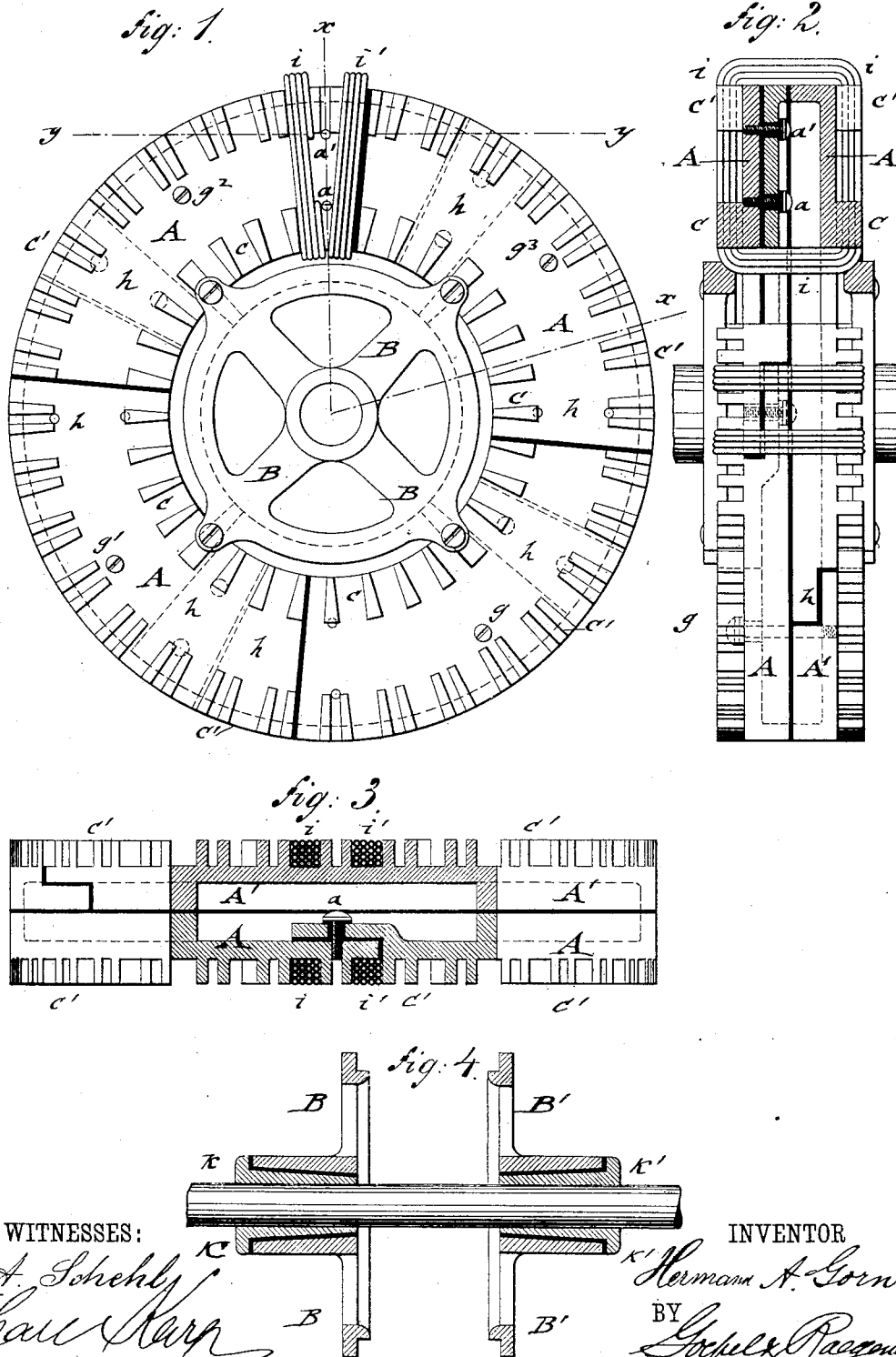


(No Model.)

H. A. GORN.  
DYNAMO ELECTRIC MACHINE.

No. 307,292.

Patented Oct. 28, 1884.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

HERMANN A. GORN, OF NEW YORK, N. Y.

## DYNAMO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 307,292, dated October 23, 1884.

Application filed December 31, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, HERMANN A. GORN, of the city, county, and State of New York, have invented certain new and useful Improvements in Dynamo-Electric Machines, of which the following is a specification.

This invention has reference to certain improvements in armatures of dynamo-electric machines by which the heating of the armature-core by the alternate polarization of the same by the field-magnets is diminished and the generation of the so-called "Foucault currents" in the core to a considerable extent obviated.

The invention consists of an armature for dynamo-electric machines having a core of U-shaped cross-section, which is made of two rings of L-shaped cross-section that are insulated from each other. Each ring of the core is made of a number of sections, which are also insulated from each other, said sections being provided with exterior lugs at their inner and outer circumference for supporting the coils of the armature. The rings of the core are attached to spider-frames, the hubs of which are mounted on the armature-shaft by an insulated bushing.

In the accompanying drawings, Figure 1 represents a side elevation of my improved armature for dynamo-electric machines. Fig. 2 is an end view, partly in cross-section, on line *x x*, Fig. 1. Fig. 3 is a plan, partly in horizontal section, on line *y y*, Fig. 1; and Fig. 4 is a detail vertical longitudinal section through the hubs of the spider-frames and their insulating-bushing.

Similar letters of reference indicate corresponding parts.

My improved armature is based on the well-known Pacinotti ring-armature. The core of the same is composed of two flat rings, A A', of L-shaped cross-section, which are rigidly secured to brass spider-frames B B', Fig. 2. The rings A A' are insulated from each other, and are connected by transverse screws *g g' g<sup>2</sup> g<sup>3</sup>* in such a manner that the main parts of the rings are parallel to each other, and form thereby a ring-shaped core of U-shaped cross-section, which is closed at the outer circumference. Each ring A or A' is made of a number of sections, which are rigidly con-

nected at their overlapping ends by screws *a a'*, (shown in Figs. 1 and 2,) the line of the joint being preferably arranged in radial direction, as in Fig. 1, though it may also be made on an oblique or zigzag line, as desired. The sections of each ring A or A' are insulated from each other at their overlapping ends. Both rings A A' are provided with laterally-projecting exterior lugs, *e e'*, respectively at the inner and outer circumferences. The lugs *e* and *e'* are arranged in radial lines and taper toward the center of the core, the outer lugs being recessed. The recesses serve for the purpose of reducing the weight of the armature and securing the regular distribution of the weight of the iron core. The coils *i i'* are wound around the core A A' in the spaces formed between the lugs, as shown in Figs. 1 and 3. The coils extend transversely across the closed outer part and the inner open part of the U-shaped core, and are separated and kept at uniform distance from each other by said lugs. Owing to its U-shaped cross-section, the core can quickly change its polarity when passing between the alternating poles of the field-magnets, whereby the generation of Foucault currents and the consequent heating of the core are almost entirely obviated. As the air has free access to the interior of the core, the cooling action takes place thereon, so as to still further diminish the heating of the core. No inductive action is exerted on the transverse inner portions of the coils, owing to the inner open part of the core, so that no induction-currents of opposite direction, which neutralize to that extent the main currents, are induced at the inner parts of the coils. The hubs of the brass spider-frames B B' are mounted on the shaft by bushings K K', which are insulated from the spider-frames, whereby the perfect insulation between the armature-coils and the coils of the field-magnets is obtained. The current that passes by "leakage" from the coils of the armature along the spider-frames and shafts to the cores and pole-faces of the field-magnets, and exerts an injurious effect upon the latter, is thereby prevented from passing beyond the spider-frames, and is consequently localized in the armature.

I am aware that armatures of U-shaped

cross-section formed of two ring-shaped semi-sections which are insulated from each other have been used heretofore, and I therefore do not claim this feature, broadly.

5 Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An armature for dynamo-electric machines, the core of which is made of U-shaped cross-sections, and formed of two L-shaped  
10 rings insulated from each other, each ring being made of a number of sections connected at their overlapping ends, and also insulated from each other, substantially as specified.

2. An armature for dynamo-electric machines, the core of which is made of U-shaped cross-section, and formed of two disk-shaped  
15 rings insulated from each other, each ring being formed of a number of sections and connected at their overlapping insulated ends, and pro-

vided with laterally-projecting lugs at the inner and outer circumference, the outer lugs being recessed to decrease the weight of the armature-core, substantially as set forth. 20

3. In a dynamo-electric machine, the combination of an armature-core of U-shaped cross-section, and made of two insulated rings, with spider-frames, to which the rings are attached, the spider-frames being provided with hubs that are secured by insulating bushings to the armature-shaft, substantially as and for  
25 30 the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

HERMANN A. GORN.

Witnesses:

CARL KARP,  
SIDNEY MANN.