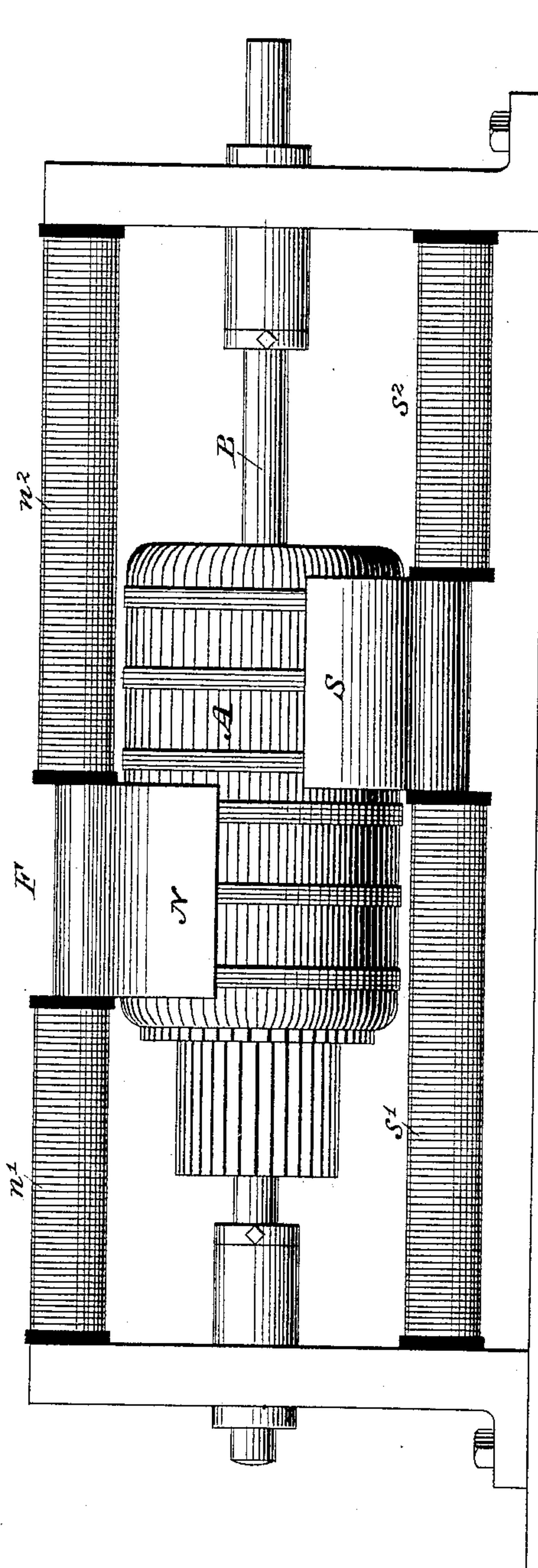


(No Model.)

J. W. EASTON.
DYNAMO ELECTRIC MACHINE.

No. 383,113.

Patented May 22, 1888.



Witnesses,

Geo. W. Breck.
Eugene J. Reilly.

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UNITED STATES PATENT OFFICE.

JAMES W. EASTON, OF NEW YORK, N. Y.

DYNAMO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 383,113, dated May 22, 1888.

Application filed March 18, 1887. Serial No. 231,359. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. EASTON, a subject of the Queen of Great Britain, residing in New York, in the county and State of New York, have invented certain new and useful Improvements in Dynamo-Electric Machines, of which the following is a specification.

The invention relates to the construction of electric generators and motors.

The invention consists, in general terms, in providing the armature with a field-magnet having poles of opposite character presented to different longitudinal portions of the armature and upon opposite sides thereof. The field-magnet may be constructed and wound in any convenient manner for securing poles of opposite character at proper points. The so-called "Siemen's consequent-pole type of field-magnet" may be adopted; but the positions of the two poles are such that they are not directly opposite each other, but are staggered or in different longitudinal planes.

In an application filed by me February 6, 1885, Serial No. 155,072, there are described certain constructions which are herein claimed.

The accompanying drawing is a side elevation of a machine embodying the features of the invention.

Referring to the figure, A represents a ring-armature wound and mounted, in any convenient well-known manner, upon a shaft, B; but it will be understood that the precise form of armature here shown is not always essential, and the type may be varied as found advantageous. This armature revolves within a field created by the field-magnet F. This field-magnet is wound with coils $n'n^2$ and $s's^2$, and it is provided with polar extensions N and S. These, respectively, receive north and south polarity by reason of currents traversing the several coils. The poles N and S, instead of being diametrically opposite each other, as in the usual construction of electric generators, are here diagonally arranged, so that while the pole N confronts one end of the armature the pole S confronts the other end. By reason of this construction an armature of suitable length may be employed in connection with field-magnet poles which are nar-

row, and which thus concentrate their lines of force upon small areas.

It is well known that, theoretically, an armature should be of as great length as possible and of small diameter, so that the core and the wire upon it may be in close proximity to the poles, and the surface of the armature may be as great as possible for the purpose of radiating heat, and in the case of the Siemens armature that the proportion of idle wire at the ends of the armature shall be as small as possible; but such construction has been found to be disadvantageous in machines having field-magnets of the usual form, for the reason that the pole-pieces of the field-magnets have been made of a width equal to the length of the armature, and thus the magnetism is too greatly diffused and not sufficiently concentrated upon the armature. By the construction here adopted it will be seen that the core of a comparatively long armature is placed or revolves in a more intense field.

I claim as my invention—

1. The combination, with the armature of a dynamo-electric machine, of a consequent-pole field-magnet having its poles presented to different points in the length of said armature, each convolution of the coils of said armature extending across the face of each of the field-magnet poles.

2. The combination, with the armature of a dynamo-electric machine, of a field-magnet having two poles facing the axis of the armature and presented to said armature at points diagonally opposite with reference to its axis, these separate convolutions of the armature-coils extending through the field of each pole.

3. In a dynamo-electric machine, the combination, with a ring-armature, of pole-pieces of opposite character presented to the periphery of the armature at different points in its length, the separate convolutions of the armature-coils extending across the face of each pole-piece.

4. In a dynamo-electric machine, the combination of a single continuous core of soft-iron wire wound upon the same, forming a cylindrical armature, and a field-magnet having

consequent poles located in different transverse planes with reference to the axis of the armature.

5. In an electric machine, the combination of a continuous armature core, its axis, wire wound upon said core parallel with said axis, and two field-magnet poles presented to different points in the length of the armature and upon opposite sides thereof.

In testimony whereof I have hereunto subscribed my name this 8th day of March, A. D. 1887.

JAMES W. EASTON.

Witnesses:

DANL. W. EDGECOMB,
CHARLES A. TERRY.