

No. 616,265.

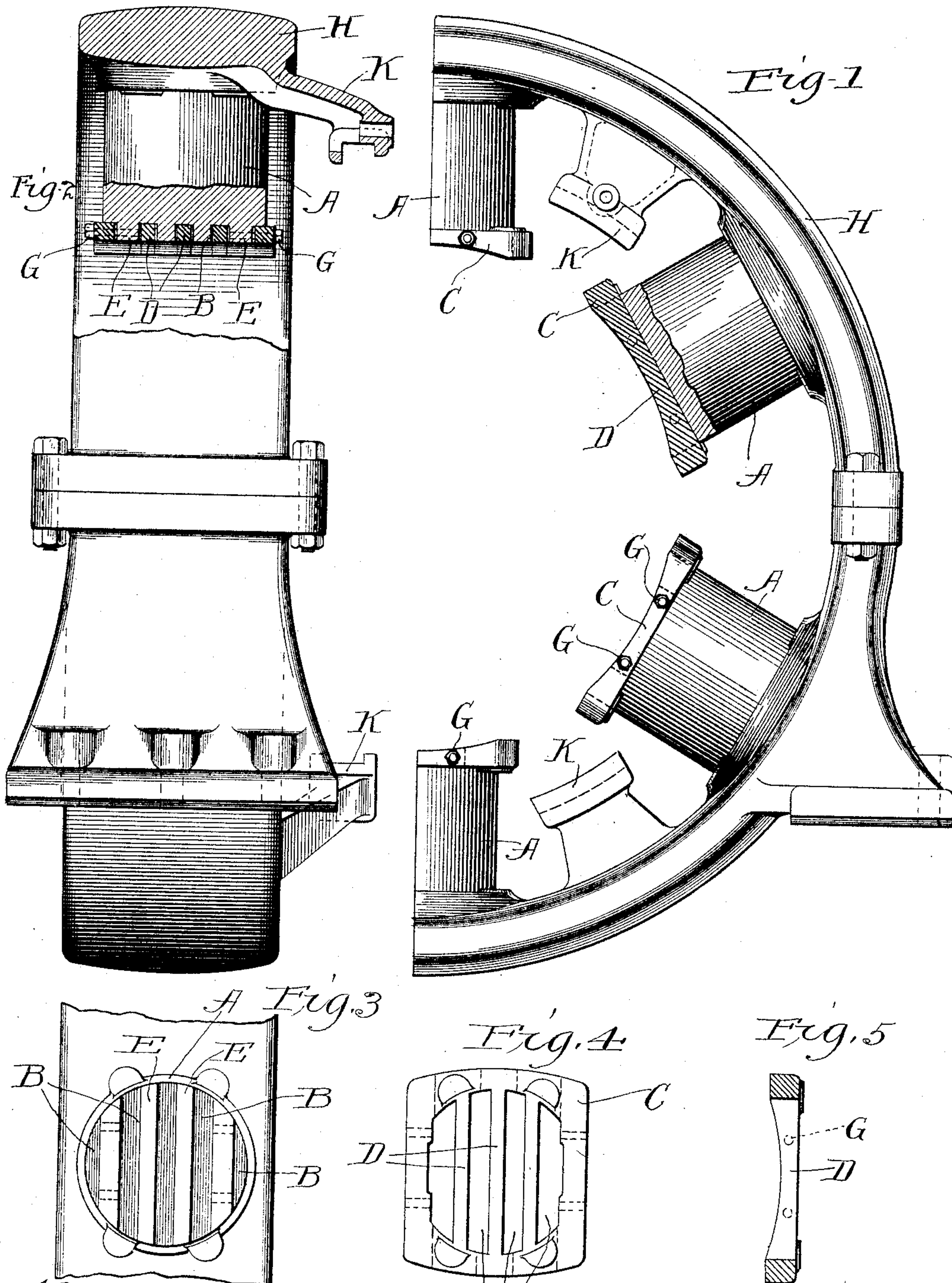
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S. H. SHORT.

FIELD MAGNET FOR ELECTRIC MACHINES.

(Application filed July 28, 1898.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

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FIELD-MAGNET FOR ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 616,265, dated December 20, 1898.

Application filed July 28, 1898. Serial No. 687,077. (No model.)

To all whom it may concern:

Be it known that I, SIDNEY HOWE SHORT, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Field-Magnet for Electric Machines, of which the following is a specification.

This invention relates to field-magnets for electric machines.

The object of the invention is to provide means for efficiently supporting the field-magnet bobbin.

A further object of the invention is to provide a construction wherein dragging of the lines of force of the magnetic field in the direction of rotation of the armature is prevented, thus preventing pinching of the lines of force in the air-gap between the pole-face and the armature-surface, while at the same time not decreasing the amount of metal in the pole-face.

The invention consists, substantially, in the construction, combination, location, and relative arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally specifically pointed out in the appended claims.

Referring to the accompanying drawings and to the various views and reference-signs appearing thereon, Figure 1 is a broken view in side elevation, parts being in section, of a field-magnet frame with field-magnet cores constructed in accordance with my invention applied thereto. Fig. 2 is an edge view of the same, partly in transverse section. Fig. 3 is a broken detail view in plan of the pole-face of the field-magnet constructed in accordance with the principles of the invention. Fig. 4 is a similar view of the grid or bobbin-support which is to be applied to the pole-face of the magnet. Fig. 5 is a transverse section through the grid shown in Fig. 4.

In the construction of field-magnets for electric machines and particularly magnets employing solid cores it is important and desirable to provide against the dragging of the lines of force of the magnetic field in the direction of rotation of the armature. It has been attempted to avoid this objection heretofore by grooving the pole-surface of the magnet, thus providing in such pole-surface gaps across which the lines of force will not

be drawn, thus preventing or lessening the drag exerted by the rotation of the armature upon the lines of force. This construction, however, results in decreasing the amount of metal in the pole-surface, and hence in decreasing the efficiency of the machine. In order to avoid this decrease in metal in the pole-face of the magnet, while at the same time preventing the drag of the lines of force, I provide in the pole-face of the field-magnets A the parallel grooves B, extending across the magnet, and I construct a grid or metallic frame C, having connecting-ribs D, adapted to be received in the grooves B, formed in the pole-face of the magnets, the solid portions E left in the pole-face of the magnet being formed to fit into spaces F between the connecting-ribs D of the grid. In other words, the parallel grooves B in the pole-face correspond with and are adapted to receive the ribs D of the grid, so that the grid will set down into the seats thus formed to receive the same in the pole-face, the outer surface of the grid being shaped to lie flush with and to conform to the contour of the pole-face of the magnet. By this construction it will be seen that the grid is held in its seat against turning, while the pole-face presents practically a solid surface, except for the joints between the magnet-face and the grid. If desired, the grid may be suitably bolted or otherwise secured, as by means of the screws G passing through portions of said grid and into the solid portions E of the magnetic pole-face, as clearly shown.

As clearly shown in Figs. 1 and 5, the grids C project beyond the magnetic pole-face, thus covering as much of the armature-surface as possible, and, as above explained, the grid and also the pole-face are suitably curved upon a radius coincident with the radius of rotation of the armature. It will also be seen that the grid C forms an efficient support for the bobbin of the field-magnet.

In the drawings, reference-sign H designates the field-magnet-supporting frame and may be of any suitable or desirable construction and arrangement, and K are arms in which the rocker-ring is supported in the usual manner.

Many variations in the construction, arrangement, and details would readily sug-

gest themselves to persons skilled in the art and still fall within the spirit and scope of my invention. I do not desire, therefore, to be limited or restricted to the exact details of construction and arrangement shown; but,

Having now set forth the objects and nature of my invention and a form of apparatus embodying the same and having explained the construction, function, and mode of operation thereof, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent of the United States, is—

1. A field-magnet for electric machines having grooves formed in the pole-surface thereof, in combination with a grid arranged to be received in said grooves, as and for the purpose set forth.

2. A field-magnet for electric machines having parallel grooves formed across the pole-face thereof, leaving intermediate ribs or pro-

jections, in combination with a frame having arms or parts adapted to be received in said grooves and to accommodate the ribs or projections of the pole-face, as and for the purpose set forth.

3. A field-magnet for electric machines having parallel grooves and ribs in the face thereof, a skeleton frame or grid having connecting portions and spaces corresponding to the grooves and ribs in the pole-face, said grid arranged to be seated on the end of the magnet and lying flush with the pole-face thereof, and means for securing said grid to said magnet, as and for the purpose set forth.

In witness whereof I have hereunto set my hand, this 25th day of July, 1898, in the presence of the subscribing witnesses.

SIDNEY H. SHORT.

Witnesses:

M. A. KENSINGER,
JOHN J. BEVER.