

H. G. REIST.

ROTATING FIELD MAGNET FOR ALTERNATING CURRENT GENERATORS.

APPLICATION FILED OCT. 18, 1901.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 5.

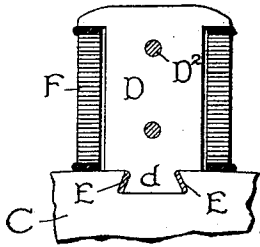


Fig. 1.

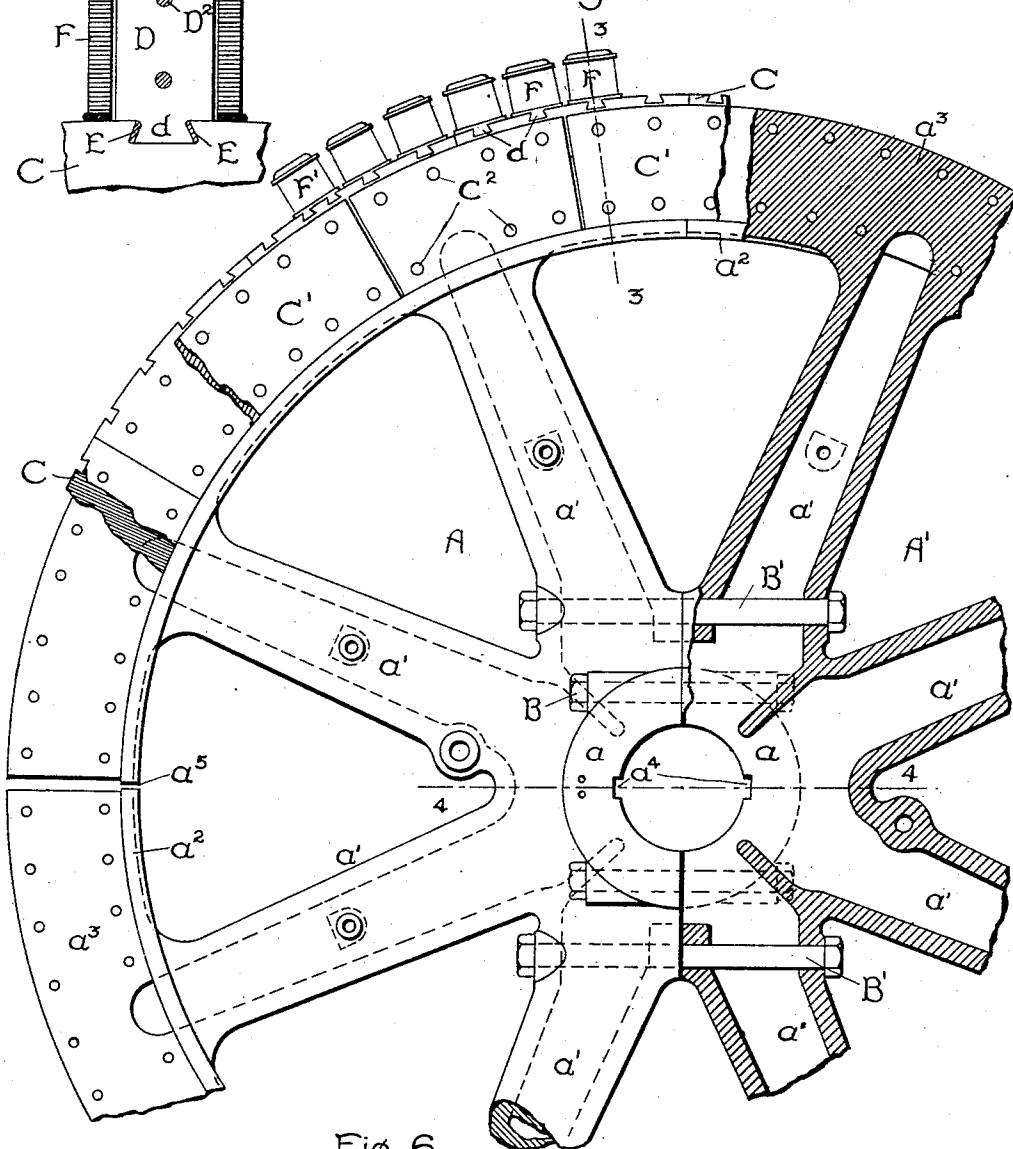
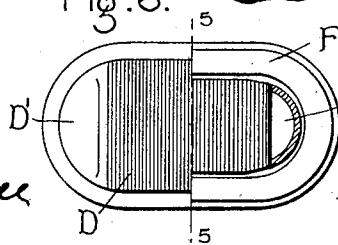


Fig. 6.



Witnesses.

Erving A. Gurney
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NO MODEL.

2 SHEETS—SHEET 2.

Fig. 2.

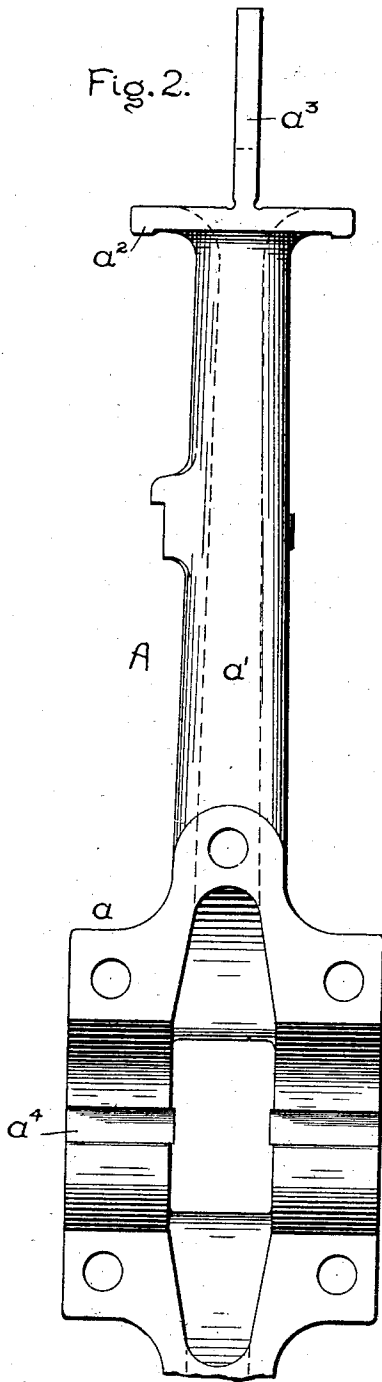


Fig. 3.

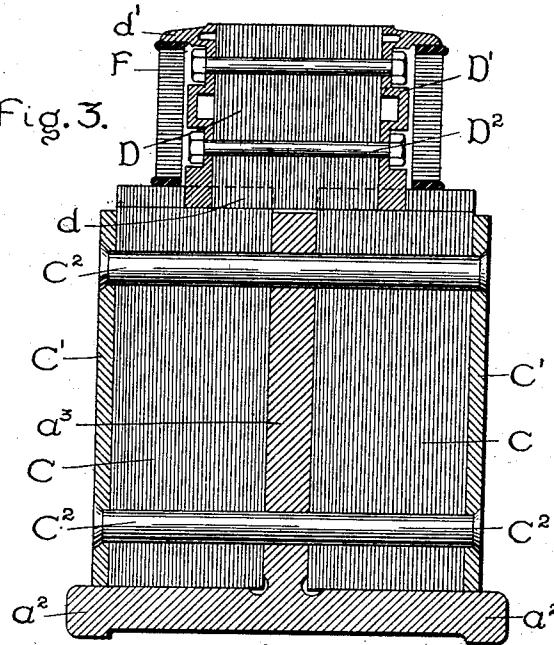


Fig. 4.

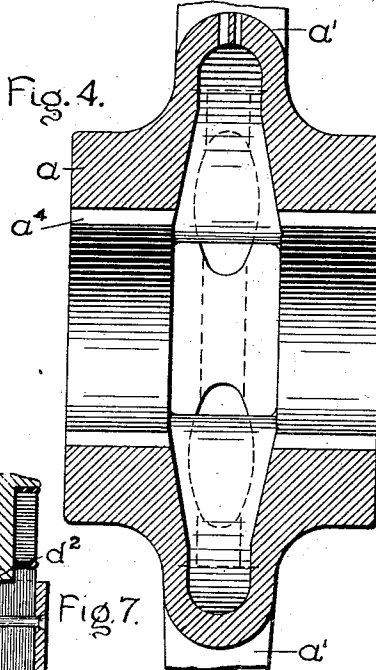
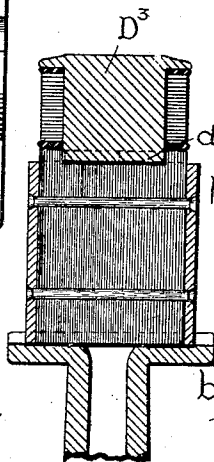


Fig. 7.



Witnesses.

Erving R. Gurney
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UNITED STATES PATENT OFFICE.

HENRY G. REIST, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

ROTATING-FIELD MAGNET FOR ALTERNATING-CURRENT GENERATORS.

SPECIFICATION forming part of Letters Patent No. 725,773, dated April 21, 1903.

Application filed October 18, 1901. Serial No. 79,143. (No model.)

To all whom it may concern:

Be it known that I, HENRY G. REIST, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Rotating-Field Magnets for Alternating-Current Generators, of which the following is a specification.

This invention relates to dynamo-electric machines; and it consists in certain details of construction constituting improvements in the field-magnet structure of rotating-field alternating-current generators.

In the accompanying drawings, Figure 1 is an end elevation, partly broken away and partly in section, of a rotating-field structure embodying my improvements. Fig. 2 is an edge view of one section of the spider. Fig. 3 is a cross-section of the rim and the attached parts on a line 3 3, Fig. 1. Fig. 4 is a section of the hub portion on a line 4 4, Fig. 1. Fig. 5 is a section of one of the magnets on a line 5 5, Fig. 6. Fig. 6 is a top plan view, half in section, of one of the magnets. Fig. 7 shows a modification.

The spider is composed of two similar parts A A', each having a hub portion a , a plurality of arms a' , and a circular rim-flange a^2 . From the middle of the rim-flange extends a web a^3 in a plane of revolution. The hub and arms are preferably hollow, as shown, and the halves of the spider are secured together by bolts B passing through each end of the hub and by bolts B' passing through the adjacent arms of the halves. Keyways a^4 are provided in the hub portions for securing the spider to a shaft. The rim-flange and web on each half of the spider may have a gap a^5 left in them about midway of their length to equalize shrinkage strains in casting. From this it follows that the rim-flange may be in more than four segments, if desired. To insure steadiness of rotation, the rim-body of the spider is a heavy structure built up of laminations of sheet-iron C, placed on each side of the web a^3 and parallel therewith. The laminations in each row have abutting ends and are arranged to break joints with those in the next row. Heavy plates C', of iron, are placed on the outside, and the whole mass is firmly secured together

and to the web a^3 by transverse bolts or rivets C². The web a^3 may be omitted, as shown in Fig. 7, and the laminated-iron body can then be dovetailed to the spider. The edges of the rim-flange a^2 are left projecting a little to allow for a final finishing cut, so that the spider can be turned up without the necessity of facing off the laminated portion. This is a very important improvement, as it has hitherto been necessary to machine the sides of the rim-body.

The field-magnet cores are composed of laminations D, clamped between end plates D' by bolts D². These are secured to the built-up rim-body of the spider by forming one or more undercut or dovetail projections or ribs d on the core and end plates, which fit into transverse undercut or dovetail grooves in the outer edge of the laminations C, which extend beyond the web a^3 and the plates C' far enough to permit the bottom of these grooves to come just outside of said web and plates. This enables the built-up magnet-cores to be slid into place transversely of the rim. A key E may be driven into the groove to firmly secure the magnet in place. Solid cores D³, as shown in Fig. 7, can be similarly secured to a laminated rim. The end plates D' are preferably rounded to fit the rounded ends of the coils F. On each end plate is a flange d' , overlapping the coil F. The upper ends of the core-laminations are also flanged to lie flush with the flanges on the end plates. This gives a continuous bearing for the outer end of the coil, retaining it securely in place. The coils may consist of a single layer of a flat metallic strip wound edgewise.

In Fig. 7, as has been mentioned above, the magnet-core is shown solid instead of laminated, and it is attached to the laminated rim by one or more dovetail projections d^2 , engaging with similar grooves in the rim. As a further modification the rim-flange may be omitted, as shown in Fig. 7, the laminations C being supported by the bolts C² and a suitable interlock with the spider, such as the dovetail shown. This construction may be used with the laminated magnet-core, which in turn may be used with the rim lacking the rim-flange, as shown in Fig. 7, if desired.

Large cores may have more than one dove-tail rib for securing them, as indicated at F' in Fig. 1.

5 What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a dynamo-electric machine, a spider having a rim-flange provided with a web projecting outwardly in a plane of revolution.
- 10 2. In a dynamo-electric machine, a spider having a rim-flange provided with a central web extending outwardly therefrom in a plane of revolution.
3. In a dynamo-electric machine, a spider having a rim-flange provided with a web projecting outwardly in a plane of revolution, and a mass of metal sheets secured to said web.
- 15 4. In a dynamo-electric machine, a spider having a rim-flange provided with a web projecting outwardly in a plane of revolution, and a mass of metal sheets secured to said web and parallel therewith.
5. In a dynamo-electric machine, a spider having a rim-flange provided with a web projecting outwardly in a plane of revolution, and a mass of metal sheets secured to said web and parallel therewith, the ends of said
- 25

sheets in the same row abutting and breaking joints with adjacent sheets.

6. In a dynamo-electric machine, a spider 30 having a rim-flange provided with a central web extending outwardly therefrom in a plane of revolution, and metal laminations fitting said rim-flange on each side of said web and secured to said web.

7. In a dynamo-electric machine, a spider 35 having a rim-flange provided with a central web projecting outwardly therefrom in a plane of revolution, metal laminations fitting said rim-flange on each side of said web and secured to said web, and heavy clamping-plates outside of said laminations. 40

8. A spider for dynamo-electric machine, having a laminated rim-body, and a cast rim-flange extending beyond said laminated body 45 to afford material for truing up without the necessity of facing off the rim-body.

In witness whereof I have hereunto set my hand this 17th day of October, 1901.

HENRY G. REIST.

Witnesses:

BENJAMIN B. HULL,
FRED RUSS.