

O. M. HOLST.
COIL SUPPORT.

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1,217,943.

Patented Mar. 6, 1917.

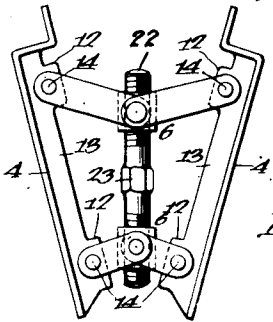
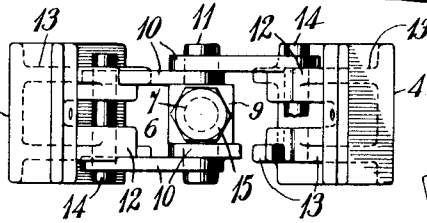
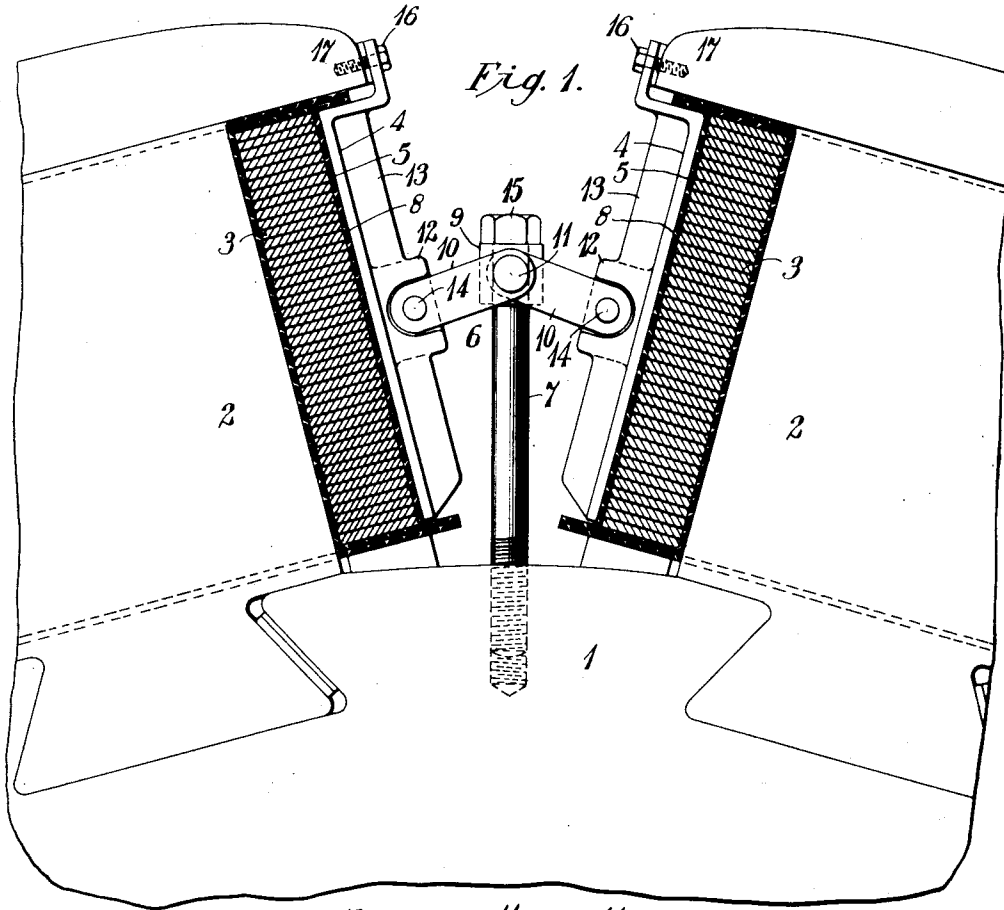


Fig. 3.

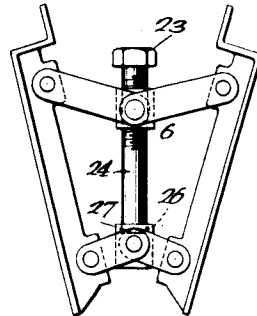


Fig. 4.

WITNESSES:

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COIL-SUPPORT.

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To all whom it may concern:

Be it known that I, OLE M. HOLST, a subject of the King of Denmark, and a resident of Wilksburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Coil-Supports, of which the following is a specification.

My invention relates to dynamo-electric machines and it has special reference to supporting structures for field coils of such machines.

The object of my invention is to provide effective, durable, inexpensive and conveniently constructed coil-supports which shall counteract centrifugal force on the field coils by reason of the rotative speed and hold said field coils securely in position under all operating conditions. Heretofore, the coil-supports provided have been of rather expensive and difficult construction, which objections I have overcome in this apparatus.

According to my present invention, I provide simple readily constructed and inexpensive field coil-supports which are sufficiently strong to resist successfully all centrifugal stresses and still be light and compact. My invention may best be understood by reference to the accompanying drawings, in which Figure 1 is a side elevation, partially in section, of a portion of a dynamo-electric machine embodying my invention. Fig. 2 is a top plan view, partially in section, of the device shown in Fig. 1. Figs. 3 and 4 are views embodying various structural modifications of my invention, which modifications, however, are all included within the scope of my claims.

Referring to Figs. 1 and 2, the apparatus here shown comprises a rotatable field magnet frame 1 having polar projections 2, field coils 3 associated with the polar projections 2, a plurality of bracing-plates 4, severally engaging a centrally disposed portion of the sides 5 of field coils 3, a thrust device 6, associated with bracing plates 4, and a radially disposed adjustable pressure member 7, operatively associated with thrust device 6 and magnet frame 1 for forcing bracing plates 4 into close contact with field coils 3. Insulating strips 8 serve to protect field coils 3 from grounding and mechanical injury. The thrust device 6 comprises a collar 9 and thrust members 10, the inner ends of which are pivotally connected to said collar by pin

11 and the outer ends of which are pivotally connected to lugs 12 on ribs 13 of bracing-plates 4 by pins 14, or are otherwise loosely held. The pressure member 7 consists of a threaded rod 7 provided with a head 15; said rod operatively engages drilled holes in collar 9 and magnet frame 1. Inward movement of rod 7 produces outward pressure on thrust member 10, which pressure is transmitted to bracing-plates 4 to cause the latter to closely engage the field coils 3 and hold them rigidly in position. Screws 16 project through holes in outer extensions of bracing-plates 4 into tips 17 or polar projections 2 and serve to prevent lateral displacement of said plates.

In the apparatus shown in Fig. 3, a plurality of integral lugs 12 are disposed at the upper and lower portions of ribs 13 on bracing plates 4 and a plurality of thrust devices, similar to the devices 6 of Fig. 1, are severally pivotally connected by pins 14 to bracing-plates 4, being convergently disposed toward each other. A radially disposed rod 22 provided with an enlargement 23 and having its ends oppositely threaded, operatively engages threaded openings in the collars of the devices 6. The thrust devices tend to move in opposite directions when the rod 22 is turned.

The apparatus shown in Fig. 4 differs only in minor details from that shown in Fig. 3. Different forms of threaded rod 24 and of lower collar 27 are used. The latter is provided with a cylindrical recess 26 to receive the lower end of rod 24.

I do not wish to be restricted to the specific structural details herein set forth, as many changes may be effected without departing from the spirit and scope of my invention, and I desire that only such limitations shall be imposed as are indicated in the appended claims.

I claim as my invention:—

1. In a dynamo-electric machine, the combination with a rotatable member having a plurality of polar projections, field coils severally disposed thereon, and bracing plates severally engaging said field coils, of a plurality of members pivotally connected to said bracing plates, and operative means associated with said members for securing said field coils in position.

2. In a dynamo-electric machine, the combination with a rotatable member having

a plurality of polar projections, field coils severally disposed thereon, and bracing plates severally engaging said field coils, of a plurality of members pivotally connected to said bracing plates, and radially operative means associated with said members to effect lateral movement of said bracing plates.

3. In a dynamo-electric machine, the combination with a rotatable member having a plurality of polar projections, field coils severally disposed thereon, and bracing plates severally engaging said field coils, of a plurality of linkage members severally engaging said bracing plates, and radially disposed and operative means cooperating with said devices for forcing said bracing plates into intimate engagement with said field coils.

4. In a dynamo-electric machine, the combination with a rotatable member having a plurality of polar projections, field coils severally disposed thereon and bracing plates severally engaging said field coils, of a linkage mechanism embodying a toggle joint device, and radially disposed and operative means associated therewith and cooperating with said bracing plates for supporting said field coils rigidly in position.

5. In a dynamo-electric machine, the combination with a rotatable member having a plurality of polar projections, field coils severally disposed thereon, and bracing plates severally engaging said field coils, of a linkage device embodying a plurality of toggle joint members, and radially disposed and operative means associated with said device and said rotatable member and cooperating with said bracing plates for supporting said field coils rigidly in position.

6. In a dynamo-electric machine, the combination with a rotatable member having a plurality of polar projections, field coils severally disposed thereon, and bracing plates severally engaging said field coils, of a toggle joint device and a radially disposed

adjustable pressure member adapted to cooperate with said device for forcing apart said bracing plates and holding said field coils rigidly in position.

7. In a dynamo-electric machine, the combination with a rotatable member having a plurality of polar projections, field coils severally disposed thereon, and bracing plates severally engaging said field coils, of a plurality of toggle joint members, and a radially disposed adjustable pressure member adapted to cooperate with said toggle joint members and said rotatable member for forcing said bracing plates into intimate contact with said field coils.

8. In a dynamo-electric machine, the combination with a rotatable member having a plurality of polar projections, field coils severally disposed thereon, and bracing plates severally engaging said field coils, of a plurality of links pivotally connected to said bracing plates, a member pivotally connected to said links, and a rod operatively associated with said member and adapted, by radial movement thereof, to effect lateral movement of said bracing plates.

9. In a dynamo-electric machine, the combination with a rotatable member having a plurality of polar projections, field coils severally disposed thereon, and bracing plates severally engaging said field coils, of a plurality of links pivotally connected to said bracing plates, a collar pivotally connected to said links, and a threaded rod operatively associated with said collar and said rotatable member and adapted, in conjunction with said collar and links, to effect lateral movement of said bracing plates.

In testimony whereof, I have hereunto subscribed my name this 5th day of Dec., 1912.

OLE M. HOLST.

Witnesses:

J. V. CROWN,
B. B. HINES.