

W. D. POMEROY.

FIELD MAGNET.

APPLICATION FILED OCT. 30, 1903.

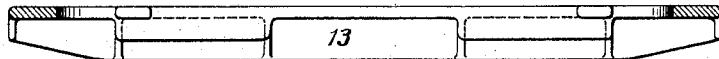
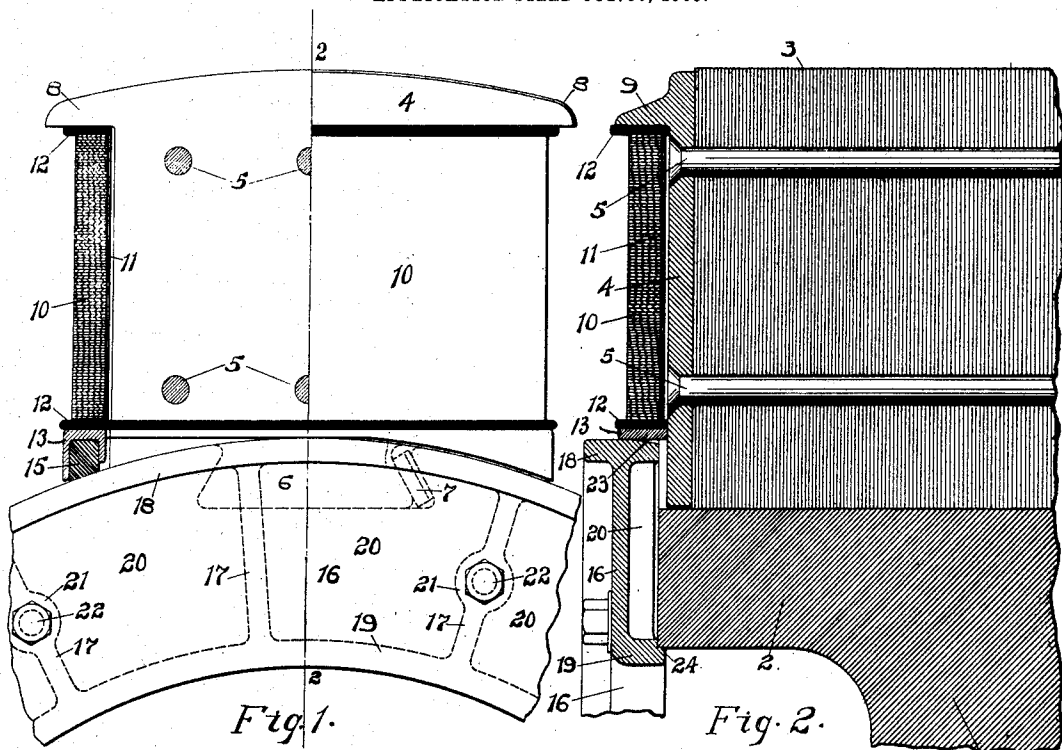


Fig. 4.

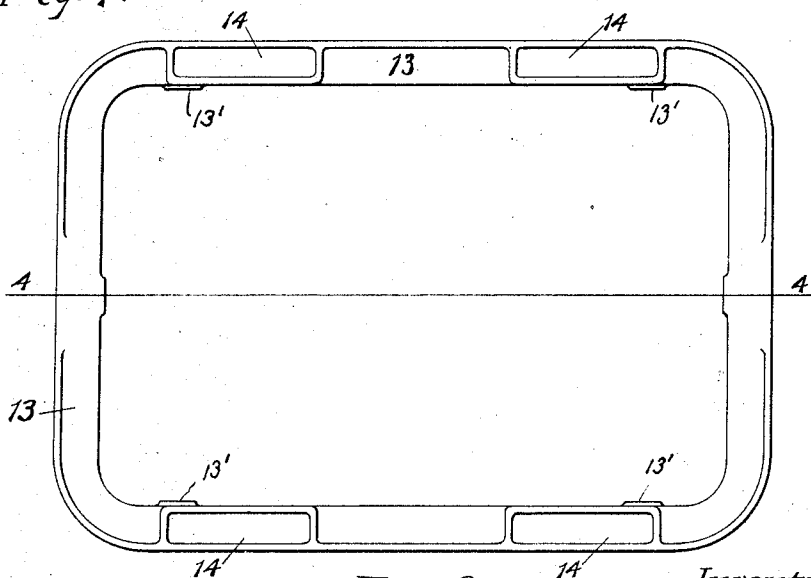
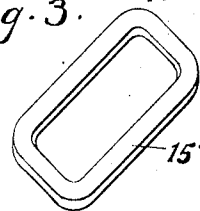


Fig. 3.

Witnesses.

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Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM D. POMEROY, OF NORWOOD, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE
BULLOCK ELECTRIC COMPANY, A CORPORATION OF OHIO.

FIELD-MAGNET.

No. 875,207.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed October 30, 1903. Serial No. 179,191.

To all whom it may concern:

Be it known that I, WILLIAM D. POMEROY, a citizen of the United States, residing at Norwood, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Field-Magnets, of which the following is a full, clear, and exact specification.

My invention relates to dynamo-electric machines, and particularly to machines of the revolving field type. In these machines it is essential not only that all parts should be firmly held in place, when first assembled, but it is necessary to provide a construction which will prevent any possibility of the parts working loose.

By my invention the coils are securely held from displacement by being clamped against a coil seat which is compressible. This compressible seat is separately removable and renewable and adapted to be easily adjusted to a suitable size. In addition to the compressible seats, I provide side supports for the coils, which also serve as convenient means for balancing.

My invention will be understood from the following description and accompanying drawings, and the novelty thereof set forth in the appended claims.

In the drawings Figure 1 is a side view of a portion of a revolving field structure with part of a field pole in section; Fig. 2 is a section on the line 2—2 of Fig. 1; Fig. 3 is a bottom plan view of the coil seat casting; Fig. 4 is a sectional view on the line 4—4 of Fig. 3, and Fig. 5 is a perspective view, on a reduced scale showing a modified form of seat for the coil.

An arm of the revolving field structure is indicated at 1 and the rim thereof at 2. The pole pieces are secured to the rim at equal distances apart and only one is shown, as the structure of each is the same. The pole may be solid or laminated and secured to the rim 2 in any of the usual ways, such as by bolt, dove-tails, etc. In the present instance I illustrate a pole made up of laminations 3 clamped together between end plates 4 by the rods 5. The pole piece thus built up is dove-tailed to the rim as indicated in dotted lines at 6 and tightened in place by the keys 7. The laminations and end plates 4 are formed with the projecting portions or tips 8 and each end plate is provided with the flange 9. A continuous rim is thus formed entirely

around the pole piece and effectively prevents outward displacement of the coil 10. This is shown as consisting of a conductor of large cross section wound edge-wise, but may consist of round wire or a combination of the two. The coil is protected on the inside by the insulating cover 11 and on the ends by the fiber collars 12. The coil fits loosely over the core of the pole.

The base of the pole is encircled by the metal casting 13. This consists of a light frame which may be of cast iron and is L shape in section. It is provided with pockets 14 on opposite sides. These may be of any size or number as is found most desirable. Blocks of wood 15, or other compressible material, are placed in pockets 14 and contact with the rim 2. The bottom face of the casting 13 is curved to conform to the periphery of the rim but is spaced therefrom by the blocks 15. On each of the inner sides of the frame 13 are formed one or more projections 13' which may be filed down to form a tight fit around the core of the pole piece. When machines are so large that the curvature of the periphery is slight, I may do away with the seat as above described and use a continuous ring of wood or other compressible material 15', such as is illustrated in Fig. 5.

Two opposite sides of the coil and seat extend beyond the sides of the rim and are supported on each side by end rings 16. These are built up in ribbed form and the radial ribs 17 and the outer and inner rims 18 and 19 not only make the rings strong structurally, but also form pockets 20. These pockets are used for the purpose of balancing the machine and may be filled or partially filled with lead for this purpose. When it is desired to weight one side, a small hole is bored in the pocket on the light side and the necessary amount of melted lead poured in when the pocket is at its lower position. The lead then solidifies in that part of the pocket which is most distant from the axis of the shaft and the inclined sides will prevent displacement of the lead. Certain of the ribs are enlarged as at 21 to receive the bolts 22, which secure the ring to the field frame. The periphery of the ring is inclined or tapered as at 23, and the inner portion of the ring engages the face as well as the interior surface of the rim 2 as shown at 24.

In assembling the parts, the coil and seat

with the wooden blocks 15 are placed over the core of the pole piece, which is then secured by bolts, keys, or otherwise, to the frame. The blocks are made of such depth 5 that in securing the pole to the frame, the parts are compressed, and this compression causes the coil to be held firmly in place. When the blocks are made of wood, a compression of 1/16" is found to be sufficient. 10 After the poles are secured in position, the end rings are bolted in place and the structure balanced as above explained. The tapered portion of the rings permits them to be readily placed within the ends of the coils and seats, and when secured in position form 15 an additional support for those parts.

I claim as my invention:

1. In a dynamo electric machine, the combination of a frame, a pole piece secured 20 thereto, a coil on the pole piece, and a separately removable compressible seat at one end of the coil and encircling the pole piece.

2. In a dynamo electric machine, the combination of a frame, a pole piece secured 25 thereto, a coil on the pole piece, and a separately removable compressible seat between the coil and said frame.

3. In a dynamo electric machine, the combination of a frame, a pole piece secured 30 thereto, a coil on the pole piece, and means encircling the pole piece at one end of the coil and comprising separately removable yieldable material, substantially as described.

35 4. In a dynamo electric machine, the combination of a frame, a pole piece secured thereto, a coil on the pole piece, and a compressible seat between the coil and said frame, said seat comprising a frame and com- 40 pressible material.

5. In a dynamo-electric machine, the combination of a frame, a pole piece secured thereto, said pole piece having projecting portions, a coil on the pole piece, and a com- 45 pressible seat between the coil and said

frame, said seat comprising a frame having pockets and compressible material in said pockets.

6. In a dynamo-electric machine, the combination of a frame, a pole piece secured 50 thereto, said pole piece having projecting portions, a coil on the pole piece, and a compressible seat between the coil and said frame, said seat comprising a metal frame which encircles the pole piece, and com- 55 pressible material in pockets in said metal frame.

7. In a dynamo-electric machine, the combination of a frame, pole pieces secured thereto, said pole pieces having projecting 60 portions, a coil on each of said pole pieces and an end ring having an inclined periphery which engages the inner ends of the coils.

8. In a dynamo-electric machine, the combination of a frame, pole pieces secured 65 thereto, said pole pieces having projecting portions, a coil on each of said pole pieces and an end ring having pockets; the periphery of said ring engaging and supporting the inner ends of the coils. 70

9. In a dynamo-electric machine, the combination of a frame, pole pieces having projecting portions secured to said frame, a coil on each pole piece, a seat of compressible material between each coil and the frame, and 75 an end ring having pockets, the periphery of said ring engaging and assisting to support the coils.

10. In a dynamo electric machine, the combination of a frame, a pole piece secured 80 thereto, a coil on the pole piece, and separately removable yieldable means located between the coil and said frame, substantially as described.

In testimony whereof I affix my signature, 85 in presence of two witnesses.

WILLIAM D. POMEROY.

Witnesses:

SANFORD KLEIN,
L. K. SAGER.