C. J. VAN DEPOELE.

Dynamo Electric Machine.

No. 232,574. Patented Sept. 21, 1880.

Fig. 1

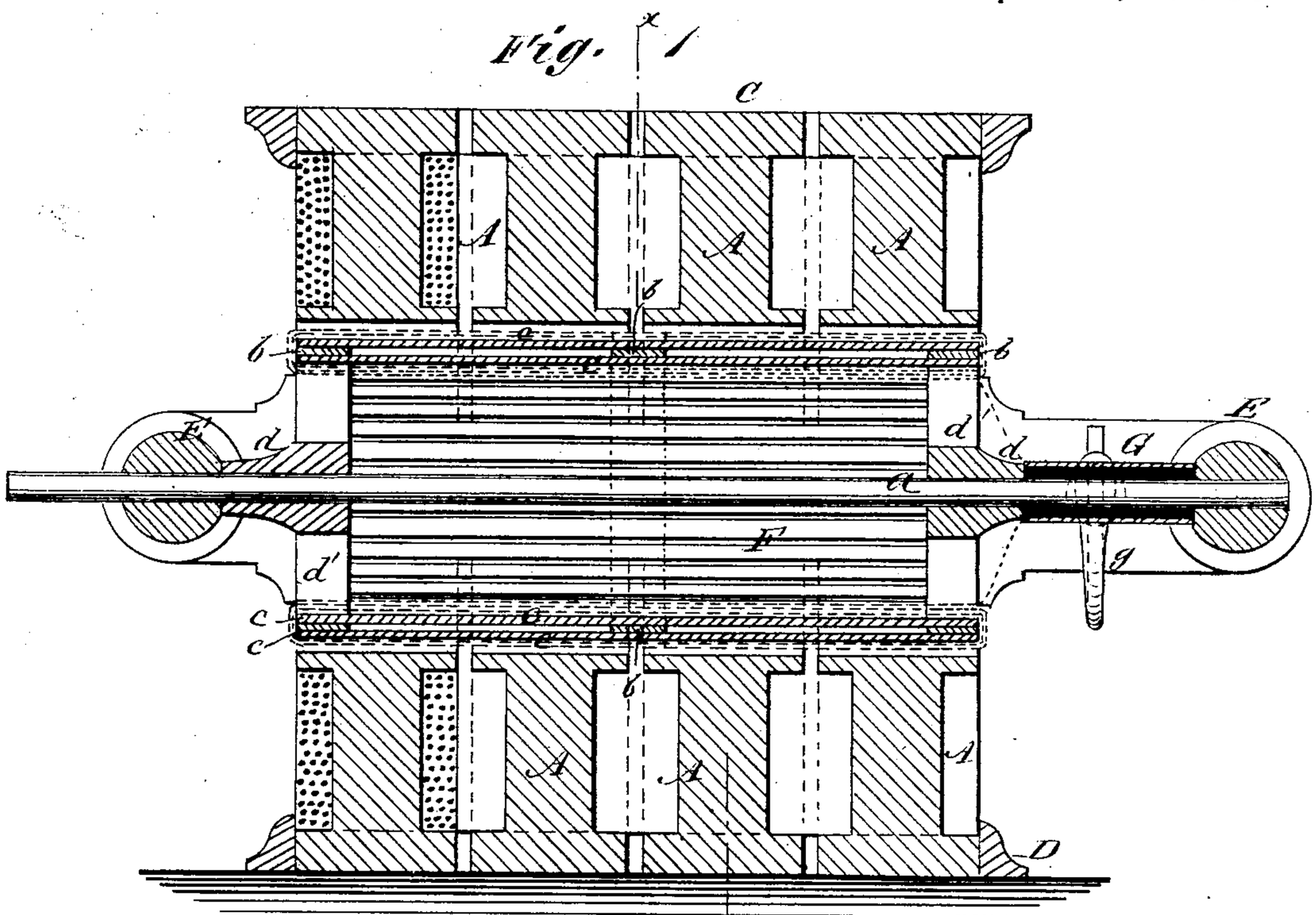


Fig. 2

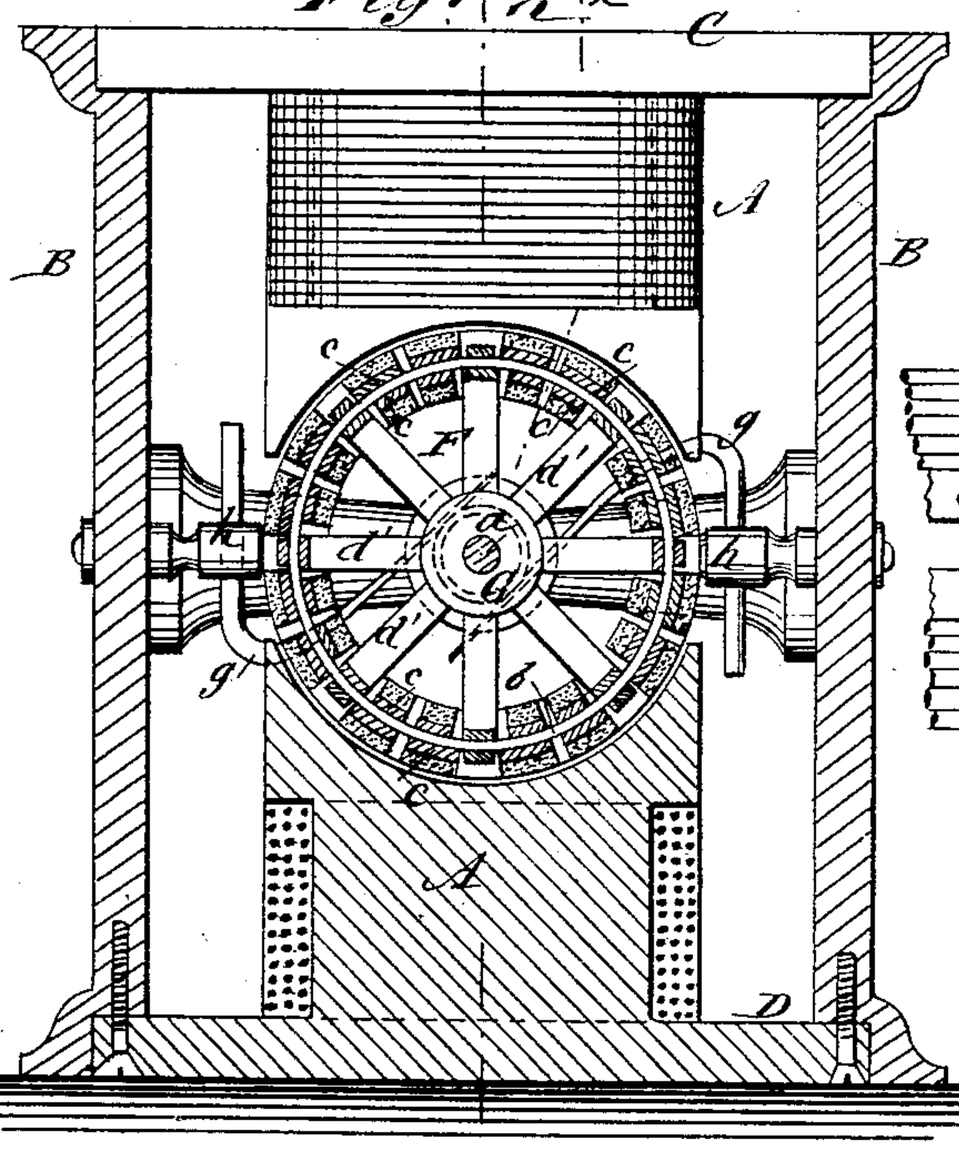


Fig. 3

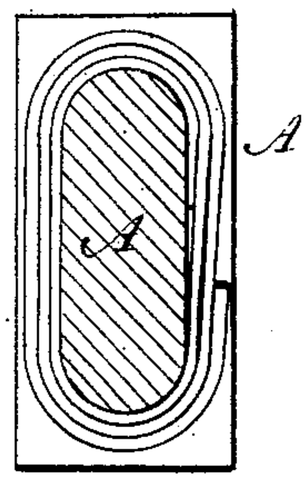
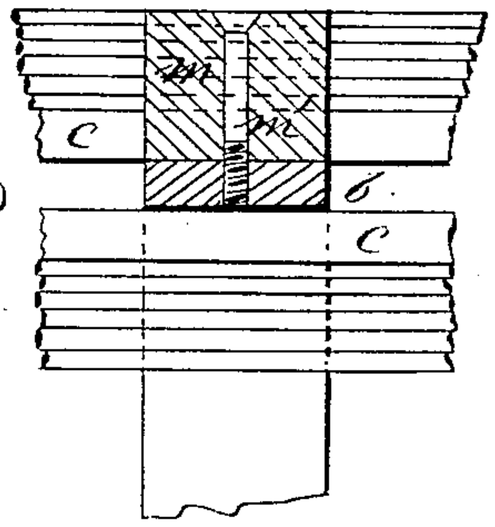


Fig. 4



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UNITED STATES PATENT OFFICE.

CHARLES J. VAN DEPOELE, OF DETROIT, MICHIGAN.

DYNAMO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 232,574, dated September 21, 1880.

Application filed September 30, 1879.

To all whom it may concern:

Be it known that I, CHARLES J. VAN DEPOELE, of Detroit, in the county of Wayne and State of Michigan, have invented a new and Improved Dynamo-Electric Machine, of which the following is a specification.

My invention relates to certain improvements in dynamo-electric machines; and it consists in the peculiar construction of the revolving armature, and in the arrangement of the same to the magnetic field and the bearings carried by projections from the sides of the case, as hereinafter fully described, and pointed out in the claims.

Figure 1 is a vertical longitudinal section of my improved dynamo-electric machine. Fig. 2 is a vertical transverse section on line *x x* of Fig. 1. The other figures are detail views.

Similar letters of reference indicate corresponding parts.

A are the magnets of the magnetic field, connected to or formed with the cast-iron cover C and base D. B B are the sides of the machine, also of cast-iron. E are bearings supporting the shaft *a* of the armature F. G is the commutator. The sides B retain the magnetic field rigidly in place, and at the same time form a protection for the machine. The situation of these sides B is such that their magnetism is *nil* in the center, so that the supports for bearings E may be cast on the sides B, and the supports may be of cast-iron instead of brass, as in machines where the support is taken from or connected directly with the poles of the magnets.

The armature F is composed of three metallic rings, *b*, one at each end of the armature and the third midway, carrying on their inner and outer peripheries longitudinal iron bars *c*, which are riveted to the rings *b*. The end rings, *b*, are secured upon the radial arms *d'* of a brass hub, *d*, that is fixed on shaft *a*, and the inner bars, *c*, are placed a sufficient distance apart to admit of the arms being connected directly to and within the rings *b*. This construction gives a very solid frame.

The armature is wound with wire in one or more insulated layers lengthwise or parallel to the axis of shaft *a*, and in sections comprising one or more inner and outer bars, *c*, which sections of wire are thus separated by the spaces between the bars *c*, and the sections are to be suitably connected, so that one or more may be used, as desired.

This construction allows free passage of air from the inner to the outer side of the magnet, which will keep the armature and magnetic field comparatively cool. This armature F, having the iron bars separated at the periphery of the rings *b*, is much superior to the ordinary drum of iron wire, which, being continuous, opposes the rotation of the armature with a constant force, and also becomes quickly heated. In my armature the separation of the bars does away with the opposing force, therefore requiring less power while giving an equal amount of current for the same amount of wire.

In operation the whole or a portion of the armature-coils is to be connected with the circuit around the magnetic field. To retain the armature-coils in place the central ring, *b*, is formed with screw-holes, into which screws *m'* may be inserted from the outside, as shown in Fig. 4, to hold wood or metal pieces *m* between the coils, which act to retain the wire coils in place. (See Fig. 4.)

The bars *c* will be more or less numerous according to the work the machine is intended to do. For quantity of current these bars *c* will be broad and heavy, while for intensity they should be narrow and numerous, and the distance between bars *c* should range from one-sixteenth to about one-half inch.

The commutator G is of usual character, *g* being the brushes, sustained by supports *h*.

One or more commutators may be placed on the shaft, corresponding to the number of independent currents the machine is to produce.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In dynamo-electric machines, an upper and lower field of small separate magnets, A, having each a separate core, in combination with an armature whose iron bars do not touch at their edges, as shown and described.

2. The combination, with the two diametrically-arranged series of magnets A, having sections C, forming top and bottom of the case, of the side B, having in their neutral line projections carrying bearings E, together with a revolving armature arranged in said bearings, as shown and described.

3. The revolving armature F, consisting of the bands *b*, attached to shaft *a* by hubs *d*, and the bars *c*, attached to bands *b* and wound with wire in sections, substantially as and for the purposes specified.

CHARLES JOSEPH VAN DEPOELE.

Witnesses:
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WALTER FOWLER.