No. 661,292. Patented Nov. 6, 1900.

J. F. KELLY.

DYNAMO ELECTRIC MACHINE.

(Application filed May 11, 1900.)

(No Model.)

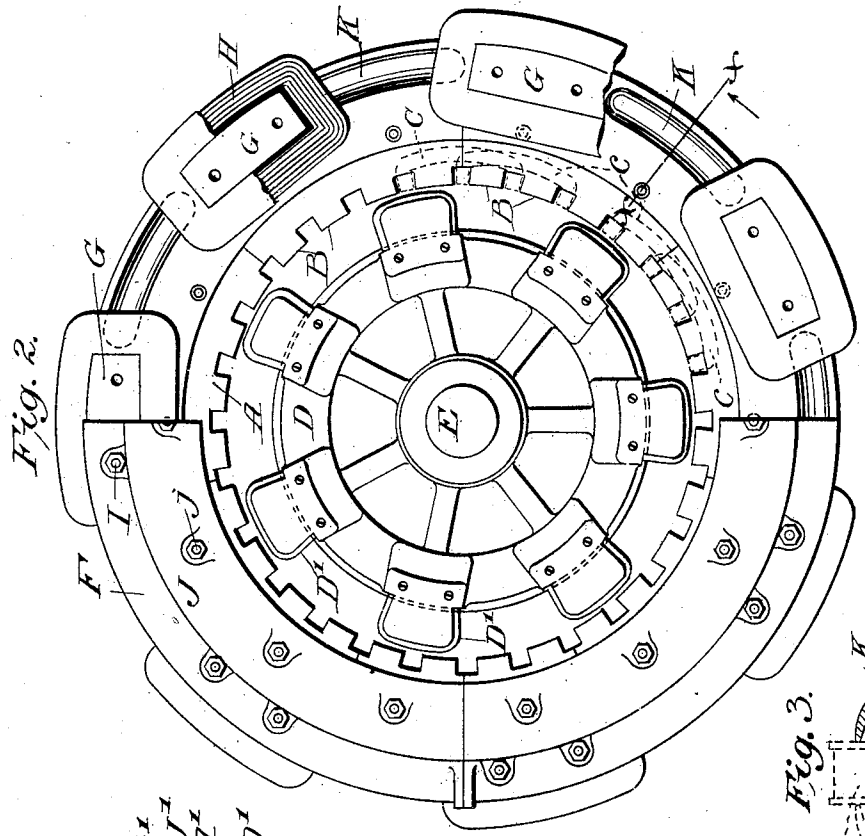


Fig. 2.

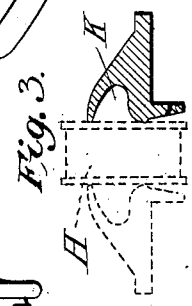


Fig. 3.

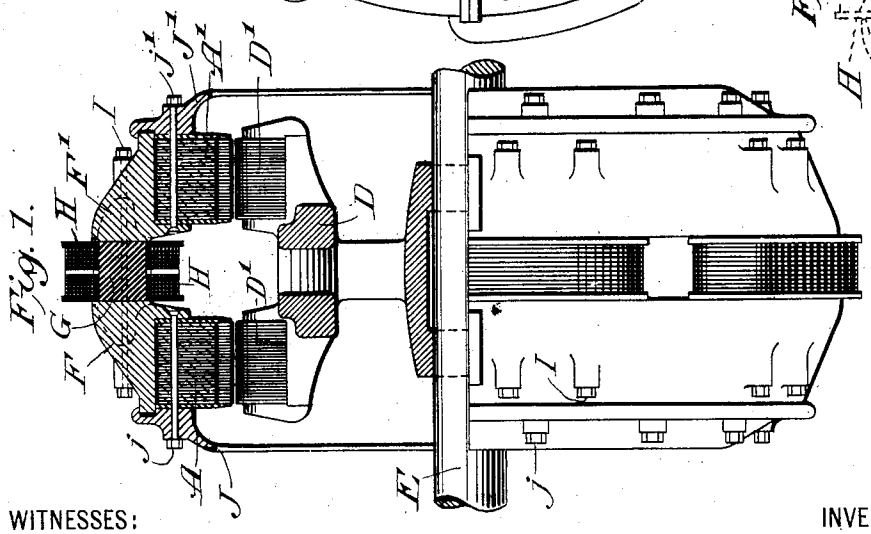


Fig. 1.

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UNITED STATES PATENT OFFICE.

JOHN F. KELLY, OF PITTSFIELD, MASSACHUSETTS.

DYNAMO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 661,292, dated November 6, 1900.

Application filed May 11, 1900. Serial No. 16,318. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. KELLY, a citizen of the United States, residing at Pittsfield, county of Berkshire, State of Massachusetts, have invented certain new and useful Improvements in Dynamo-Electric Machines, of which the following is a full, clear, and exact description.

My invention relates to improvements in dynamo-electric machines in which there are one or more continuous polar surfaces, each suitably energized and carrying armature-coils and means for directing the magnetic flux through said coils. Heretofore machines of this class have been constructed somewhat as shown in Patent No. 499,446, granted to William Stanley, Jr., and myself under date of June 13, 1893, and such machines have proved to be very efficient. In these machines, however, particularly in the large sizes, in which the parts are shipped separately, the exciting-coil which surrounds the inductor and is concentric with its shaft is difficult to ship on account of its great size, and, furthermore, the position of the coil with reference to the shaft magnetizes the latter, and so, unless means are provided to prevent it, in cases of direct connection magnetizes the engine, which may at times interfere with the governor action.

The principal objects of my invention are to do away with the difficulty due to the large size of the exciting-coil and to produce a construction in which the shaft shall not be magnetized and the stray magnetism lessened and to provide a machine convenient for manufacture and generally efficient in operation. I attain these objects by the machine illustrated in the accompanying drawings, in which—

Figure 1 is an end view, partly in section. Fig. 2 is a side view with parts removed or broken away to show details, and Fig. 3 is a detail view on the line x x of Fig. 2.

Referring more particularly to the drawings, A A′ represent two magnetic bodies made up of laminations in the usual manner, each having a continuous polar surface B, on which armature-coils C are located, being preferably sunk in recesses, as shown.

D is an inductor having projections D′, which, as the inductor rotates about its shaft E, revolves before the polar surfaces B and the coils C thereon and forms a path of low magnetic inductance from the continuous surface of the body A of one polarity to the continuous surface of the body A′, which is of the other polarity.

The two magnetic bodies A A′ are connected together by magnetic extensions consisting of the frames F F′ and the connecting-blocks of magnetic material G, which are placed at regular intervals. About each of the connecting-blocks G is an energizing-coil H, all of the energizing-coils being traversed by continuous currents, so as to make the body A of one polarity and the body A′ of the opposite polarity. The two frames F F′ are held together by bolts I passing through the blocks G and holding them also in position. The external shields J J′ are held in position by the bolts j j'. The reluctance of the blocks G is made high relatively to the other portions of the magnetic circuit in other parts of the stationary portion of the machine, so as to prevent substantial variation of the magnetic flux in the unlaminated portions. The frames F F′ have recesses K formed therein between the blocks G in order to further restrain the flux and lessen the weight of material used.

From the foregoing it will be seen that the energized coils H H produce the necessary polar surface in the machine and yet are of comparatively small dimensions, so that they can be handled and shipped with ease and safety. It will further be seen that these coils do not set up any magnetomotive force in the shaft E, thereby lessening the stray magnetism which has heretofore existed in this type of machines and preventing the difficulties and dangers hitherto arising from the magnetization of an engine directly connected to dynamos of this class.

Of course in common with all dynamo-electric machines the apparatus may be used either as a generator or as a motor. In fact, manufacturers of apparatus of this sort very often do not know, when the apparatus is sold, as to whether it is to be used to generate electricity or to be fed with alternating currents and deliver mechanical power.

What I claim is—

1. In a dynamo-electric machine the com-

bination of a set of coils carried by a magnetic body having a continuous polar surface of revolution of one polarity at which both limbs of said coils are located, an inductor mounted so as to be rotatable within said coils and form magnetic paths from said polar surface, and means for magnetizing the said magnetic body so as to produce said polar surface, said means not embracing the axis of said inductor, substantially as described.

2. In a dynamo-electric machine the combination of a magnetic body having one continuous surface of revolution, means for rendering said surface of a definite polarity, said means not embracing the axis of revolution of said surface, coils carried by said magnetic body having both limbs located at its continuous surface and a rotatable inductor adapted to move in front of said coils, substantially as described.

3. In a dynamo-electric machine the combination of a magnetic body having a continuous polar surface of revolution, coils, not concentric with the axis of revolution, for energizing said polar surface, said coils lying in planes substantially at right angles to said axis, armature-coils having both limbs located at said continuous surface of revolution, and an inductor adapted to rotate before said surface and armature-coils, substantially as described.

4. In a dynamo-electric machine the combination of two magnetic bodies each having a continuous polar surface of revolution, means for rendering said surfaces of opposite polarity, said means not embracing the axis of revolution, armature-coils having both limbs located at said polar surfaces, and an inductor mounted so as to rotate before said coils, substantially as described.

5. In a dynamo-electric machine the combination of two magnetic bodies each having a continuous polar surface of revolution, connections between said bodies, energizing-coils, not concentric with the axis of revolution, and lying in planes substantially at right angles thereto, said coils surrounding said connections, armature-coils having both limbs located at the continuous surfaces of said bodies and carried thereby, and an inductor rotatable within said armature-coils, substantially as described.

6. In a dynamo-electric machine the combination of two magnetic bodies each having a continuous polar surface, extensions from said bodies, energizing-coils surrounding said extensions, armature-coils having both limbs located at the surface of said bodies and carried thereby, and an inductor rotatable within said armature-coils, substantially as described.

7. In a dynamo-electric machine the combination of two magnetic bodies having continuous polar surfaces, a plurality of energizing-coils held between said bodies at intervals, armature-coils supported by said bodies and having both limbs located at their polar surfaces, and an inductor rotatably mounted within said armature-coils, substantially as described.

Signed at Pittsfield, Massachusetts, this 8th day of May, 1900.

JOHN F. KELLY.

Witnesses:

CUMMINGS C. CHESNEY,

M. L. NICHOLS.

Corrections in Letters Patent No. 661,292.

It is hereby certified that in Letters Patent No. 661,292, granted November 6, 1900, upon the application of John F. Kelly, of Pittsfield, Massachusetts, for an improvement in "Dynamo-Electric Machines," errors appear in the printed specification requiring correction, as follows: In line 12, page 2, the word "one" should be stricken out and the article *a* inserted, and line 16, same page, the article "a" should be stricken out and the word *one* inserted; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 27th day of November, A. D., 1900.

[SEAL.]

F. L. CAMPBELL,
Assistant Secretary of the Interior.

Countersigned:

C. H. DUELL,
Commissioner of Patents.

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