

No. 608,133.

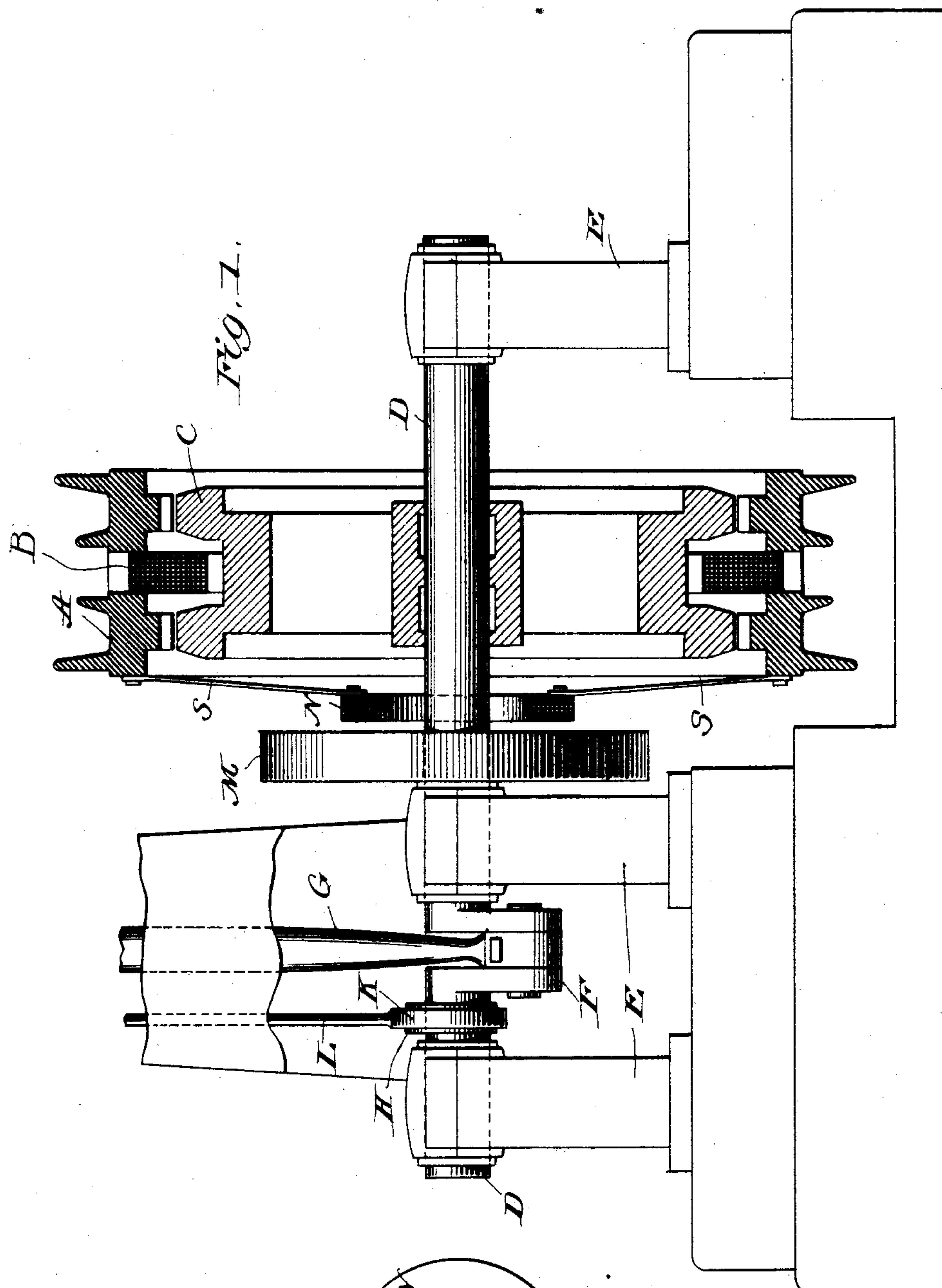
Patented July 26, 1898.

J. F. KELLY.

MEANS FOR PREVENTING STRAY MAGNETISM IN DYNAMO ELECTRIC MACHINES.

(Application filed May 27, 1898.)

(No Model.)



WITNESSES:

Frank S. Ober
Emerson B. Hewell

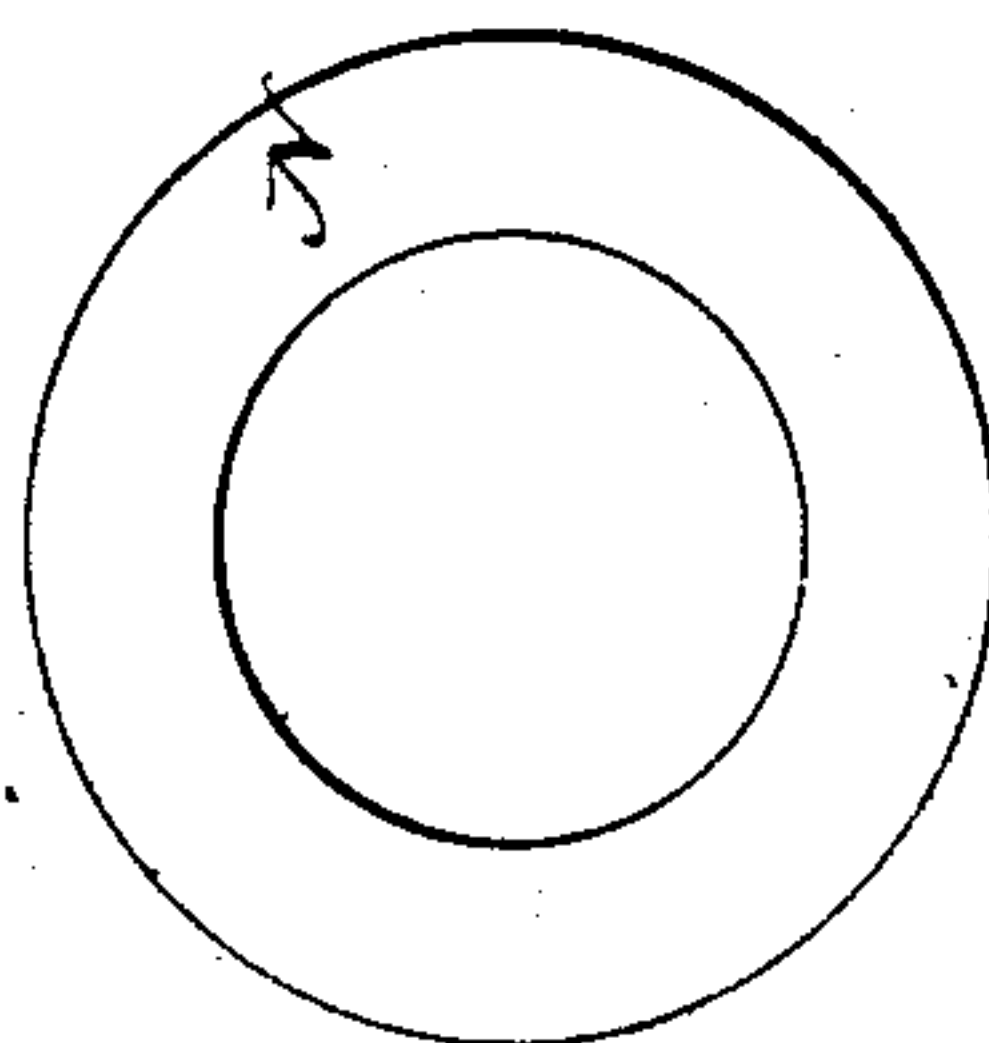


Fig. 2.

INVENTOR

John F. Kelly,

BY

H. B. Brownell,

ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN F. KELLY, OF PITTSFIELD, MASSACHUSETTS, ASSIGNOR TO THE
STANLEY ELECTRIC MANUFACTURING COMPANY, OF MASSACHU-
SETTS.

MEANS FOR PREVENTING STRAY MAGNETISM IN DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 608,133, dated July 26, 1898.

Application filed May 27, 1898. Serial No. 681,940. (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 Means for Preventing Stray Magnetism in Dynamo-Electric Machines, of which the following is a full, clear, and exact description.

My invention relates to dynamo-electric machines, and has for its object to provide means for counteracting the injurious magnetism in the shafts and other magnetic parts of dynamo-electric machines, especially those directly connected to engines and known as "direct-connected dynamos." In direct-connected dynamo-electric machines—such, for instance, as inductor-generators—difficulty is often experienced on account of the magnetization of parts of the engine. The shaft by which the rotating parts of the machine are carried being of iron or steel, and consequently a good conductor, and being within the influence of the energizing-coil, a magnetic flux is set up therein, which is transmitted by it to other parts of the engine, and if powerful enough often causes trouble and produces injurious effects. One of the most common effects of this magnetization is the overheating of two relatively-moving parts—such as the eccentric-straps and the journals. Another of these bad effects is that the sensitiveness of the governor is often affected. Of course a bronze shaft might be substituted for the iron or steel one, but this would entail a very large additional expense, besides such material is unsuitable in other ways for such use. I have found that the magnetism of such parts within the influence of the inducing means may be prevented from reaching the engine parts by setting up in such conducting parts a magnetomotive force opposed to the one which results in said magnetic flux, and this, when properly adjusted, will counteract and destroy the other. In the present embodiment of my invention I have placed a protecting-coil of wire around the shaft between the electric machine and the engine and have passed a current through the same, so that the magnetomotive force

produced thereby is opposed to that set up by the energizing-coil of the electrical machine. By a proper adjustment of the current in this protecting-coil the magnetism of the parts of the engine may be completely prevented.

In one embodiment of my invention, Figure 1 shows partly in section an inductor-generator with a protector in the form of a coil surrounding the shaft and between the electric machine and the engine. Fig. 2 shows a side view of the protecting-coil.

In the drawings, A represents the stationary part of an inductor-generator carrying an energizing-coil B.

C is the rotating part of such generator, mounted upon a shaft D, which is supported on posts E E. A part of the engine which is connected directly to the inductor-generator to drive it is shown on the left of Fig. 1.

F is a crank to which is connected the piston-rod G of the engine which drives the shaft. The shaft also carries an eccentric H, having an eccentric-strap K and eccentric-rod L.

M is a fly-wheel, which may or may not be used.

N is the electrical protector, which in this embodiment of my invention is a stationary coil of wire supported, as shown, by rods s from the stationary part A. The energizing-coil B sets up a magnetomotive force in the shaft D which would otherwise reach the engine and bring about the injurious effects spoken of above, but when a current is passed through the coil N in a direction such that a magnetomotive force will be produced by the same opposed to that produced by the energizing-coil B said forces in said shaft will neutralize each other, and the magnetization of such shaft by the coil B will be prevented, and by a proper adjustment of the current in this protector-coil the magnetism of the engine may be completely destroyed. Since this coil on account of its position never needs the same number of ampere-turns as the main energizing-coil and since, further, it may be placed much closer to the shaft in this embodiment, the energy required to excite it is relatively small—I might say insig-

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nificant—and the cost of the coil itself is also small. In this way I have provided a simple, cheap, and effective means for preventing the undue magnetization of the engine.

5. It will be obvious that many modifications of my broad idea may be made without departing from the spirit of my invention.

What I claim is—

1. A dynamo-electric machine having an energizing-coil and a magnetic part within the influence of said coil, in which said coil sets up a magnetomotive force, in combination with a coil surrounding said part and adapted to produce therein a magnetomotive force which neutralizes and prevents the passage through said part of the magnetic flux produced by said first force.

2. A dynamo-electric machine having an inductor mounted upon, and rotating with, a shaft, and an energizing-coil surrounding said shaft, magnetizing said inductor, and setting up a magnetomotive force in said shaft, and an engine directly connected to said shaft, in combination with a protecting-coil, between said engine and machine, surrounding said shaft and setting up in said shaft a magnetomotive force which, at a point therein, neutralizes and prevents the passage through said shaft of the magnetic flux produced by said first force.

JOHN F. KELLY.

Witnesses:

H. A. BULLARD,
FREDERICK WILLIAM PHISTERER.