

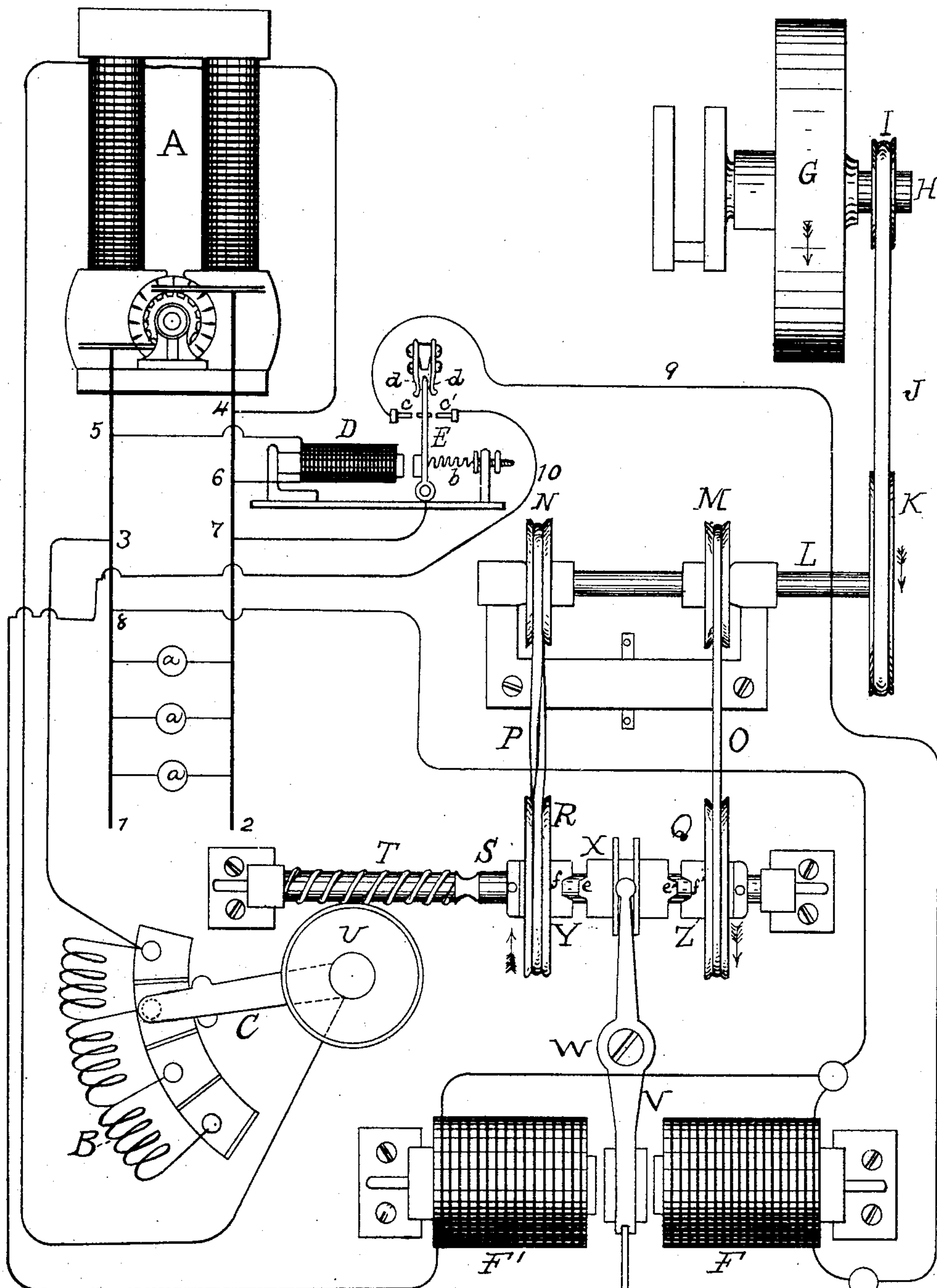
(No Model.)

J. F. OTT.

REGULATOR FOR DYNAMO ELECTRIC MACHINES.

No. 271,654.

Patented Feb. 6, 1883.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

JOHN F. OTT, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE EDISON ELECTRIC LIGHT COMPANY, OF NEW YORK, N. Y.

## REGULATOR FOR DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 271,654, dated February 6, 1883.

Application filed August 14, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN F. OTT, of Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in the Regulation of Dynamo and Magneto Electric Machines; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention relates to apparatus for varying the resistance in the field-circuit of a dynamo or magneto electric machine for the purpose of automatically regulating the generation of current by such machine; and said invention consists in the novel and peculiar devices for this purpose hereinafter described, and specified in the claim.

The accompanying drawing represents my invention in diagram.

A is a dynamo-electric machine, from which run main conductors 1 2, having electric lamps or other translating devices, *a a*, arranged in multiple arc upon them. The field-magnet of the generator is energized by a multiple-arc circuit, 3 4, though a circuit from some external source might be used for this purpose. The circuit 3 4 includes a resistance, B, and a pivoted arm, C, for varying such resistance. In a multiple-arc circuit, 5 6, is an electro-magnet, D, having a pivoted armature, E, retracted by a spring, *b*. The armature E, which forms part of the multiple-arc circuit 7 8, has its free end placed between contact-points *cc'*, and also between spring-arms *d d*, which hold the armature normally midway between the contact-points. From point *c* a wire, 9, runs, including the electro-magnet F, and returning to the main line at 8. The wire 10, from the point *c'*, includes the magnet F', and also returns to the main line at point 8.

G is the fly-wheel of the engine which drives the armature of the generator. Upon its shaft H is a pulley, I, from which a belt, J, runs to pulley K on shaft L. On shaft L are also two pulleys, M N, from which, respectively, the straight belt O and the twisted belt P run to the pulleys Q and R, which are sleeved to the shaft S, so as to turn loosely thereon. The shaft S carries the worm T, which engages with the worm-wheel U, to the latter of which the arm C is attached.

Between the poles of the electro-magnets F F' is the arm V, which is pivoted at W, and

at its upper end is attached to the sleeve X, which is feathered upon the shaft S, so as to turn with it, but have a longitudinal movement upon it. The arm V is attached to sleeve X in such manner that the latter will turn under the former. The sleeve X is provided with beveled projections *e e'*, which, when such sleeve is forced in one or the other direction, enter corresponding notches, *f f'*, on the sleeves Y Z of the pulleys Q R.

The operation of the above-described apparatus is as follows: When the number of translating devices *a a* on the main conductors 1 2 is increased the energy of the magnet D is diminished, and the armature E is drawn back by its spring *b*, and, making contact at *c'*, closes the circuit 7 8 through the wire 10 and magnet F'. The magnet F', being energized, attracts the arm V, and the sleeve X is moved so that the projections *e'* engage with the recess *f'*, and the motion of the loose pulley Q is communicated to the shaft S, and thence, through the worm-gearing T U, to the arm C, moving the last in such direction as to throw out a portion of the resistance B from the field-circuit 3 4. By reason of the twist in the belt P the pulley R is constantly rotated in a direction opposite to that of pulley Q. Therefore when the energy of the magnet D is increased, the circuit 7 8 closed through the magnet F, and the sleeve X thrown into engagement with sleeve Y the arm C is turned so as to increase the amount of resistance B in circuit.

It is evident that the pulleys M N could be run from the armature-shaft, or from any other revolving part of the generating apparatus, instead of from the engine-shaft H.

What I claim is—

The combination, with a dynamo or magneto electric machine, of an adjustable resistance in its field-circuit, a shaft for operating the resistance, two loose pulleys mounted on said shaft and arranged to be constantly rotated in reverse directions, and an electro-magnetic clutch for connecting, when called into operation, one or the other of the loose pulleys to its shaft, so as to vary the resistance, substantially as set forth.

This specification signed and witnessed this 6th day of June, 1882.

Witnesses:

JOHN F. OTT.

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