(No Model.)

T. A. EDISON.

REGULATOR FOR DYNAMO ELECTRIC MACHINES.

No. 264,671. Patented Sept. 19, 1882.

Fig. 1.

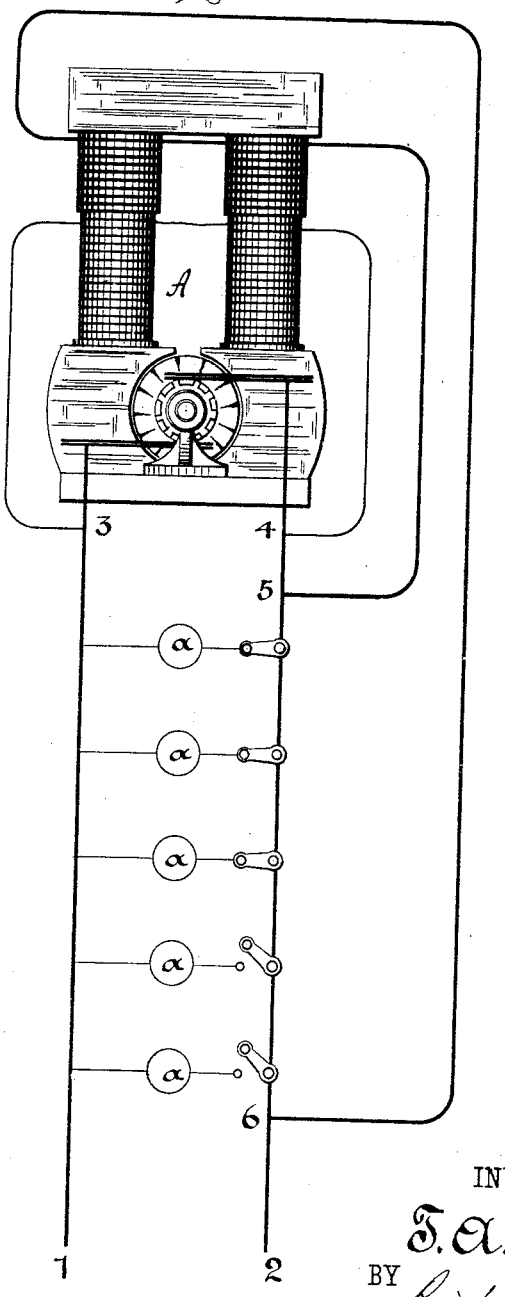
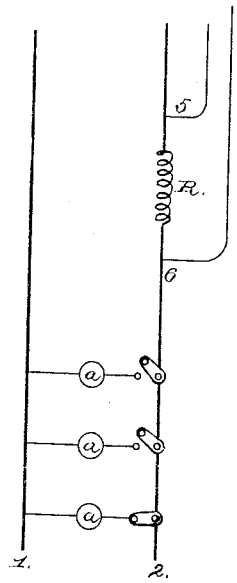


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF MENLO PARK, NEW JERSEY.

REGULATOR FOR DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 264,671, dated September 19, 1882.

Application filed August 7, 1882. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in Regulating the Generative Capacity of Dynamo or Magneto Electric Machines, (Case No. 392;) and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object of my invention is to produce means for regulating the energy of the field-magnet of a dynamo or magneto electric-machine supplying current to a multiple-arc system of electrical distribution, which shall operate automatically on the addition or removal of translating devices, and shall not require any mechanism whatever for varying the strength of the field-circuit

In carrying my invention into effect the field-magnet is partly wound with wire, the coils being preferably in a multiple-arc circuit from the main line. This circuit has a comparatively high resistance, which remains constant, and may be obtained by the winding itself or by means of an additional resistance placed in the circuit. The resistance of the circuit is such that the requisite electro-motive force will be given only when a few translating devices are in circuit. In addition to this winding, a portion of the magnet is wound with a conductor formed of bunched wires, to give flexibility for winding, preferably equal in conductivity to one of the main conductors leading from the machine, and these coils are in a shunt-circuit from one of the said main conductors, which circuit starts at a point near the machine, preferably between the machine and the first translating device, and returns to the main conductor at a point beyond the farthest translating device. There is of course a difference of potential between these two points, and the greater the number of translating devices between them the greater becomes the difference of potential. When only a few translating devices are in circuit the constant field-circuit energizes the magnet sufficiently; but as more devices are placed in circuit and the electro-motive force becomes too weak the fall of potential at the end of the main line causes a greater amount of current to flow through the shunt, so that the field-magnet becomes stronger and the electro-motive force is increased. If, now, translating devices are removed, the difference of potential becomes less and the field-magnets are weakened by the decrease of current in the shunt. Instead of a shunt-circuit depending upon the drop in pressure on one of the main conductors, a shunt around a resistance placed in one of the main conductors may be used for the field-circuit of the machine. This may be better understood by reference to the drawings, in which—

Figure 1 is a diagrammatic view of the preferred form of connections, and Fig. 2 a view showing modified connections.

A represents the field-magnet, and 1 2 the main circuit therefrom, in which translating devices *a a* are placed in multiple-arc circuits.

3 4 is the constant field-circuit, and 5 6 the shunt-circuit. The wire 3 4 may be wound on a portion of the limbs of the magnet and the wire 5 6 on the remaining portion, as shown; or the wire 3 4 may cover the whole of the cores, while the thicker wire is placed over it. It is evident that the circuit 3 4 could be supplied from an external source, such as a battery or another dynamo or magneto electric machine. The shunt 5 6 may be around a resistance, R, Fig. 2, in 1 or 2.

What I claim is—

1. The combination, with the field-magnet of a dynamo or magneto electric machine and translating devices in multiple-arc or derived circuits from the main conductors thereof, of a shunt-circuit from one of the main conductors for energizing said field-magnet, the current in such shunt being dependent upon the number of translating devices in circuit, substantially as set forth.

2. The combination, with a dynamo or magneto electric machine, of a circuit for primarily energizing the field-magnet and another field-circuit formed by a shunt from one main conductor, the current in which is controlled by the number of translating devices in circuit, for automatically regulating the strength of the field-circuit in direct proportion to the number of translating devices, substantially as set forth.

3. A dynamo or magneto electric machine supplying translating devices arranged in multiple-arc circuits, in combination with a shunt-circuit from one of the main conductors of the machine around the multiple-arc connections therewith, for increasing the strength of the field-magnet, and another circuit for primarily energizing the field-magnet, substantially as set forth.

4. The combination of a multiple-arc circuit from the main conductors for primarily energizing the field-magnet and the shunt-circuit from one of such main conductors around the multiple-arc connections therewith for increasing the strength of such field-magnet, substantially as set forth.

5. The combination of a multiple-arc circuit containing a portion of the coils of the field-magnet of a dynamo-electric machine, a multiple-arc circuit containing the armature of said machine, multiple-arc circuits containing lamps or other translating devices, (all these multiple-arc circuits being derived from the same main conductors,) and a shunt-circuit from one of said main conductors, including a portion of the coils of said field-magnet, the current in said shunt being dependent upon the number of translating devices in circuit, substantially as set forth.

This specification signed and witnessed this 10th day of February, 1882.

THOMAS A. EDISON.

Witnesses:
H. W. SEELY,
SAMUEL INSULL.