

No. 669,362.

Patented Mar. 5, 1901.

W. EMMOTT.

REGULATING DEVICE FOR ELECTRIC CURRENTS.

(Application filed Dec. 28, 1897.)

(No Model.)

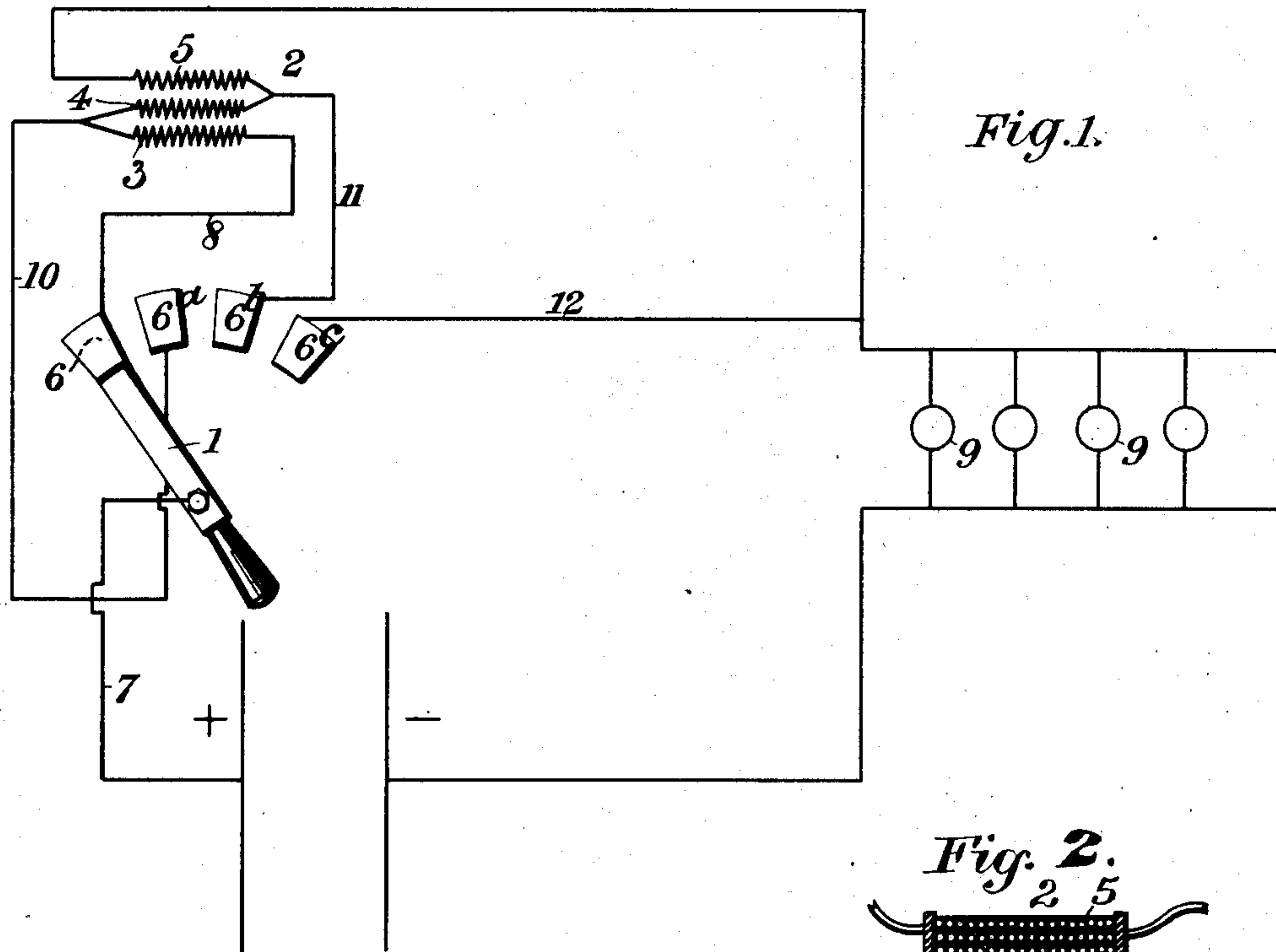


Fig. 1.

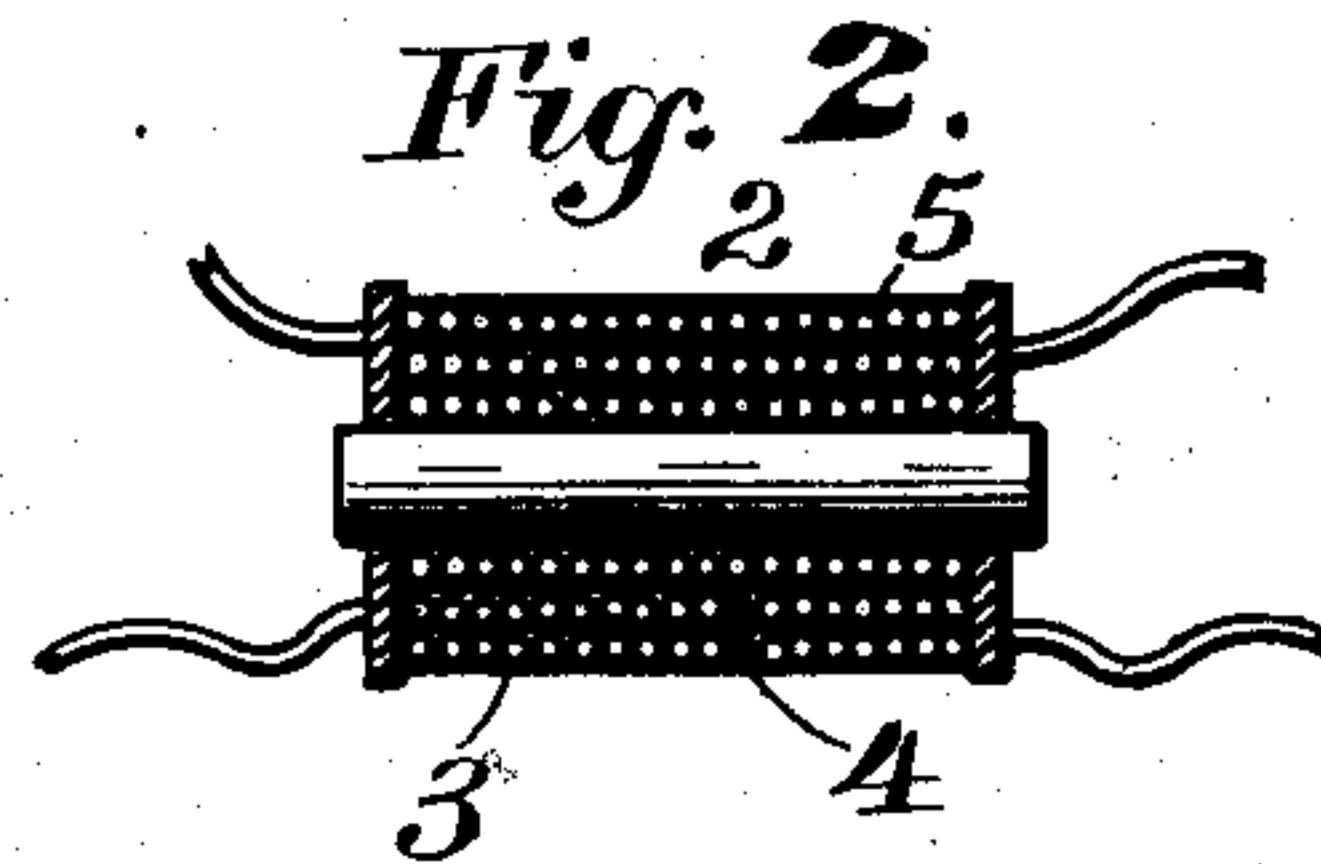


Fig. 2.

WITNESSES.

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# UNITED STATES PATENT OFFICE.

WALTER EMMOTT, OF HALIFAX, ENGLAND.

## REGULATING DEVICE FOR ELECTRIC CURRENTS.

SPECIFICATION forming part of Letters Patent No. 669,362, dated March 5, 1901.

Application filed December 28, 1897. Serial No. 664,005. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER EMMOTT, a subject of Her Majesty the Queen of Great Britain, residing at Halifax, in the county of York, England, have invented a certain new and useful Improvement in Regulating Devices for Electric Circuits, (for which I have obtained Letters Patent in Great Britain under date of September 25, 1896, No. 21,236,) of which the following is a specification.

This invention relates to an improvement in devices employed for regulating the amount of electricity passing through a circuit, and is specially adapted for use in connection with incandescent lamps, as by its use the light of such lamps can be increased or lowered by turning or moving the switch-handle which controls the lights in a manner similar to ordinary gas-lights.

The invention consists of the combination, with any ordinary switch, of an impedance-coil or a coil with a movable core or a coil divided into separate circuits, so arranged that the current can readily be switched onto the lamps direct or so as to be more or less impeded.

In the accompanying drawings, Figure 1 is a diagram showing the arrangement of the parts comprising a form of my invention, and Fig. 2 represents the impedance-coil of Fig. 1 in section.

In order to regulate and control an alternating current, I employ an ordinary switchboard and lever 1 and an impedance-coil 2, the latter having, preferably, a fixed core, as shown in Fig. 2, and wound in superimposed sections, which extend longitudinally of the said core and approximately the whole length thereof, while the separate convolutions of each section pass transversely around the core. Obviously instead of having the sections of only one layer each, as shown in Fig. 1, any desired number of layers may be used in each section. In Fig. 1 this coil is represented as made up of coils 3, 4, and 5, divided into sections by tapping the ends of the coils and connecting them at those points with the wires which lead to the other parts of the apparatus, as shown and described. By thus dividing the coil instead of dividing it into transverse sections which extend only a part of the length of the core a higher degree of magnetization and a greater efficiency are attained. A series

of contacts 6, 6<sup>a</sup>, 6<sup>b</sup>, and 6<sup>c</sup> are in connection with the switch-lever 1, and each contact 6 has its own connection with the lamps. A wire 7 from one of the mains is connected to the switch-lever 1, and the first contact 6 on the left-hand side is connected by wire 8 with the impedance-coil 2, and when the circuit is made through this contact 6 the current passes through the whole three parts 3, 4, and 5 of the coil 2, and so to the lamps 9, the light from which would then be at the lowest. If the switch-lever 1 be moved to the next contact 6<sup>a</sup>, the current will pass by wire 10 only through parts 4 and 5 of the coil 2, and the lamps will not be quite so low. If by way of the next contact 6<sup>b</sup>, then the current passes by wire 11 through one part 5 only, and the lamps are still higher. If the circuit is made by the last contact 6<sup>c</sup>, the current passes by wire 12 direct to the lamps, which are thus full on. By dividing the coil as described and employing a series of contacts I am enabled to control and regulate any number of lights in the case of an electric-light circuit or to regulate the speed of a motor in a motor-circuit.

Having thus described a form of my invention, the same may be modified in obvious ways without departing from the spirit thereof; but

What I claim, and desire to secure by Letters Patent of the United States, is—

The combination with an electric-supply circuit, of a working circuit connected thereto, a switch 1 connected to one terminal of the supply-circuit, said switch having a plurality of contacts 6, 6<sup>a</sup>, 6<sup>b</sup> and 6<sup>c</sup>; a circuit 12 connecting contact 6<sup>c</sup> in series between the switch and the working circuit, an impedance-coil 2, divided into circuits formed as coils 3, 4 and 5, all of said coils being connected in series with the contact 6 and the working circuit; circuits 10 and 11 connected respectively to the contacts 6<sup>a</sup> and 6<sup>b</sup> and to points of the impedance-coil intermediate between the first and second and second and third coils of the impedance-coil, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WALTER EMMOTT.

Witnesses:

J. B. HOWARD,

GERVASE APPELYARD.