

No. 661,196.

Patented Nov. 6, 1900.

W. M. SCOTT.  
RHEOSTAT AND CIRCUIT BREAKER.

(Application filed Sept. 28, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig 1

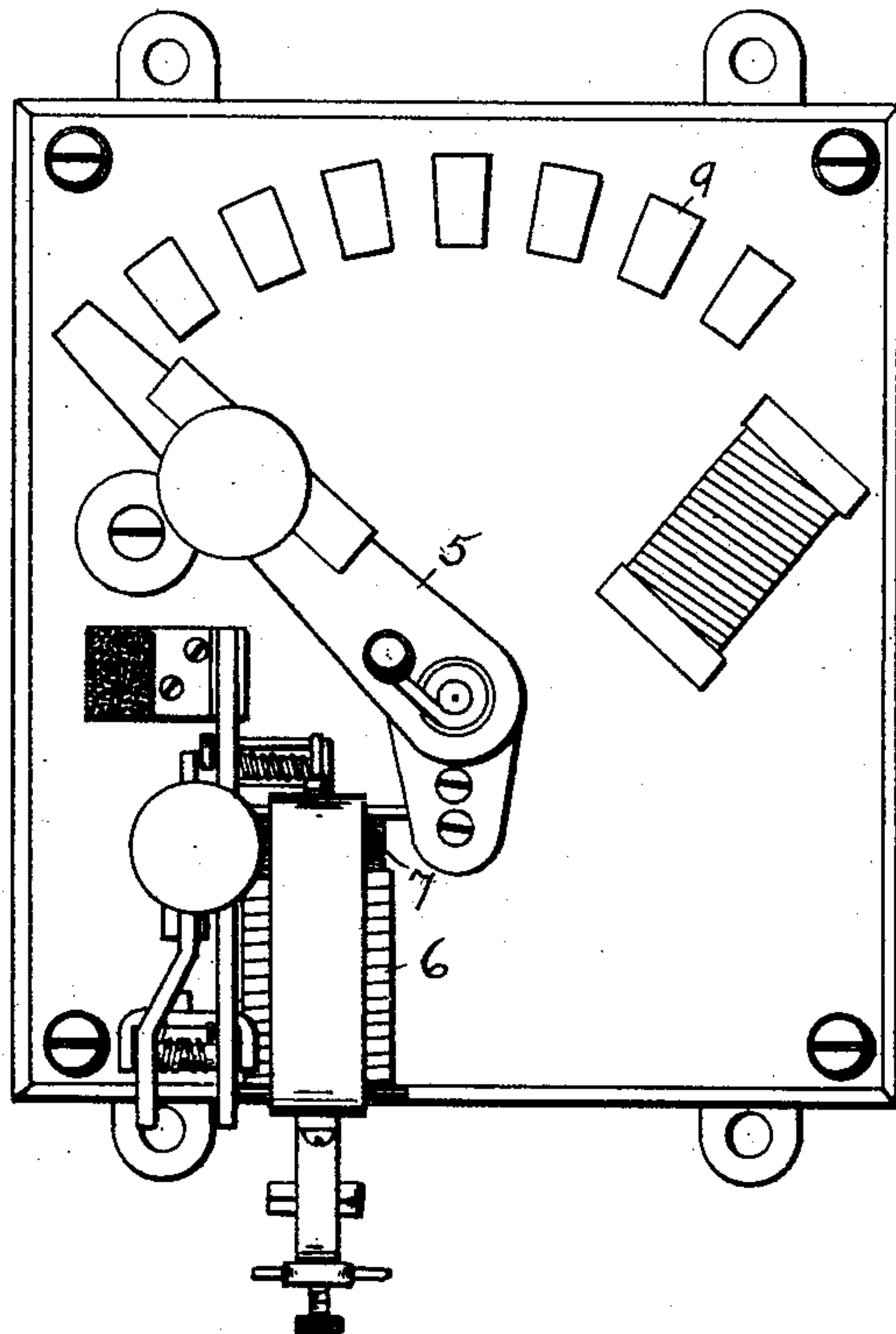
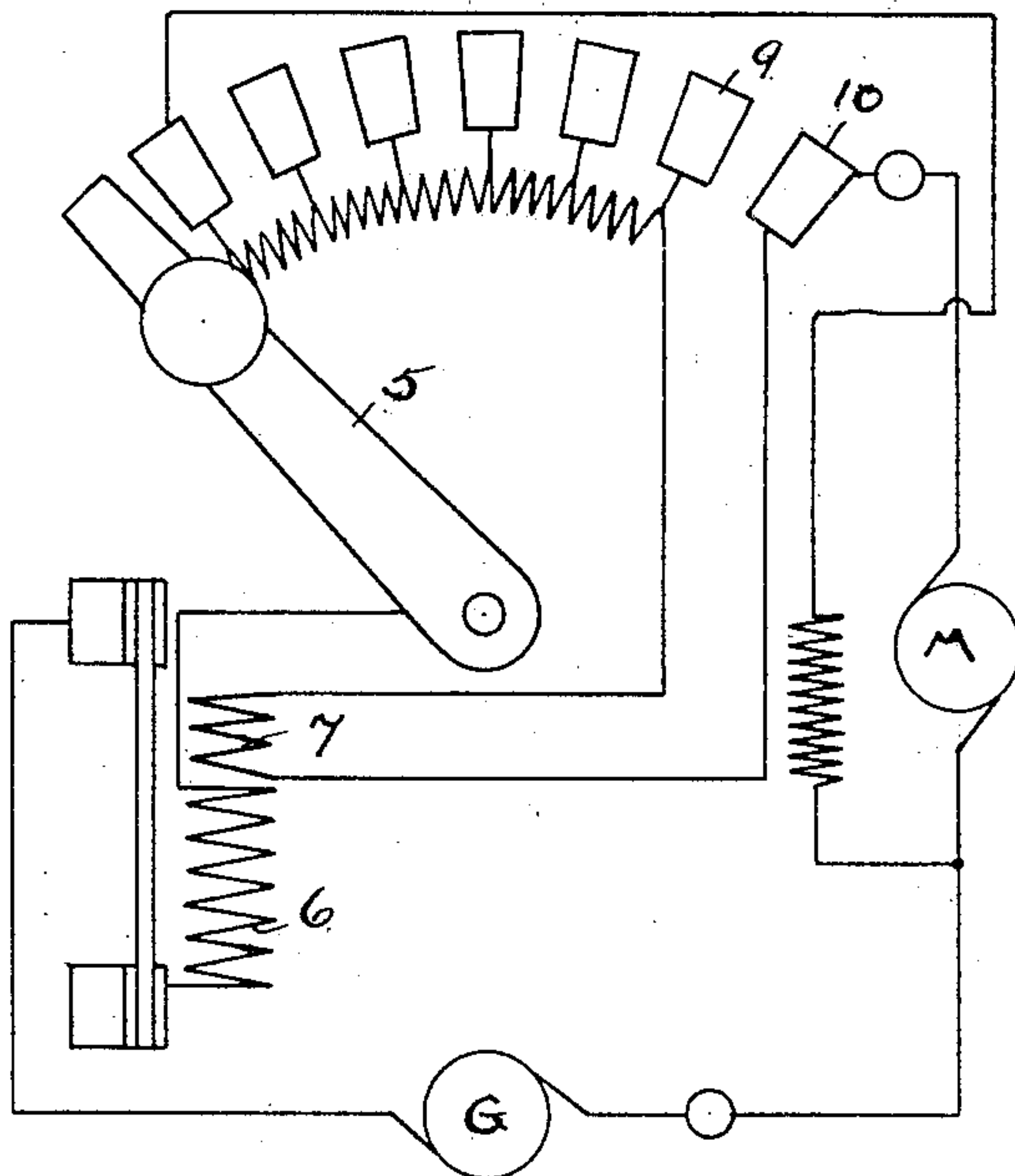


Fig 2



WITNESSES:

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Fig 3

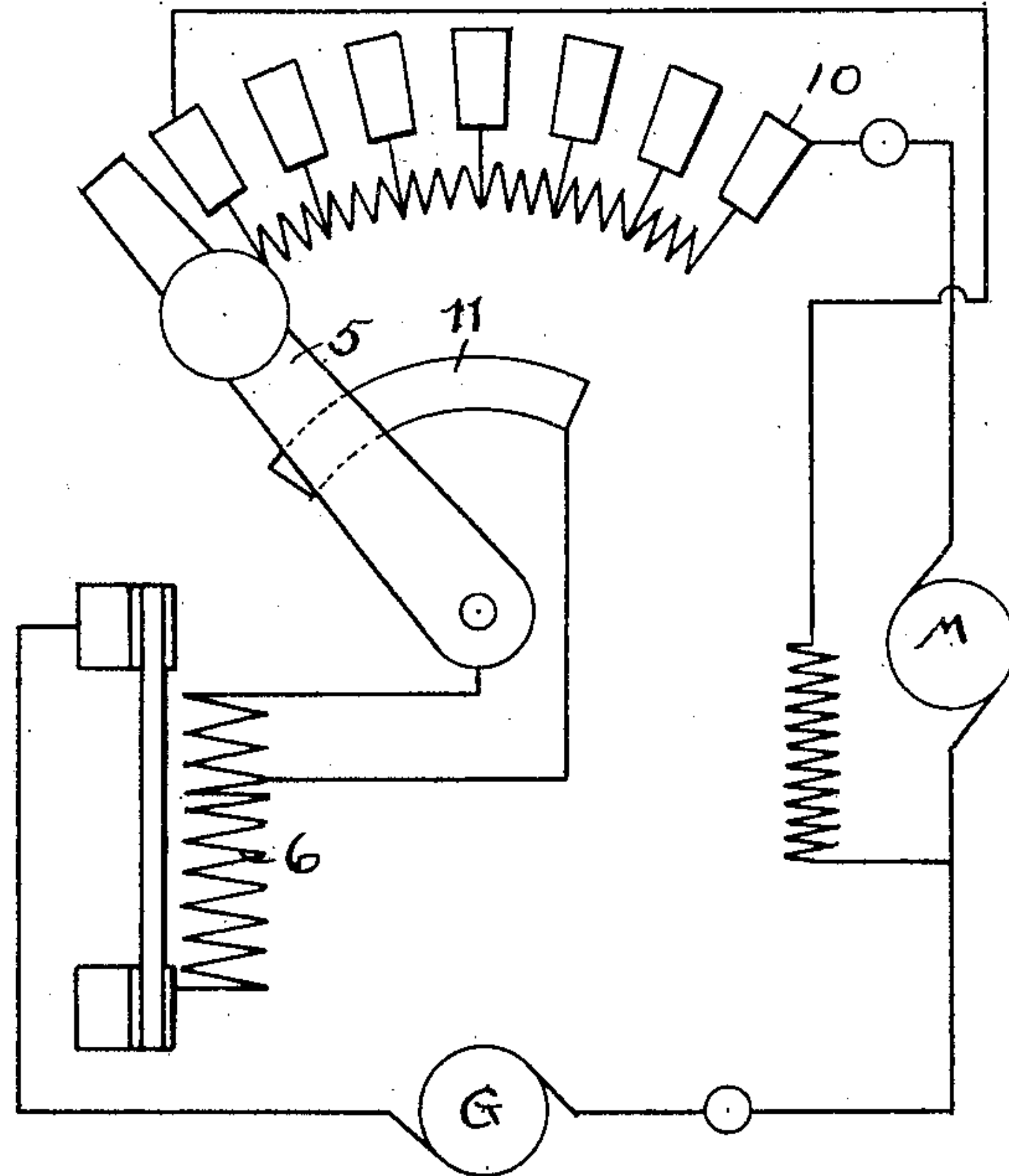
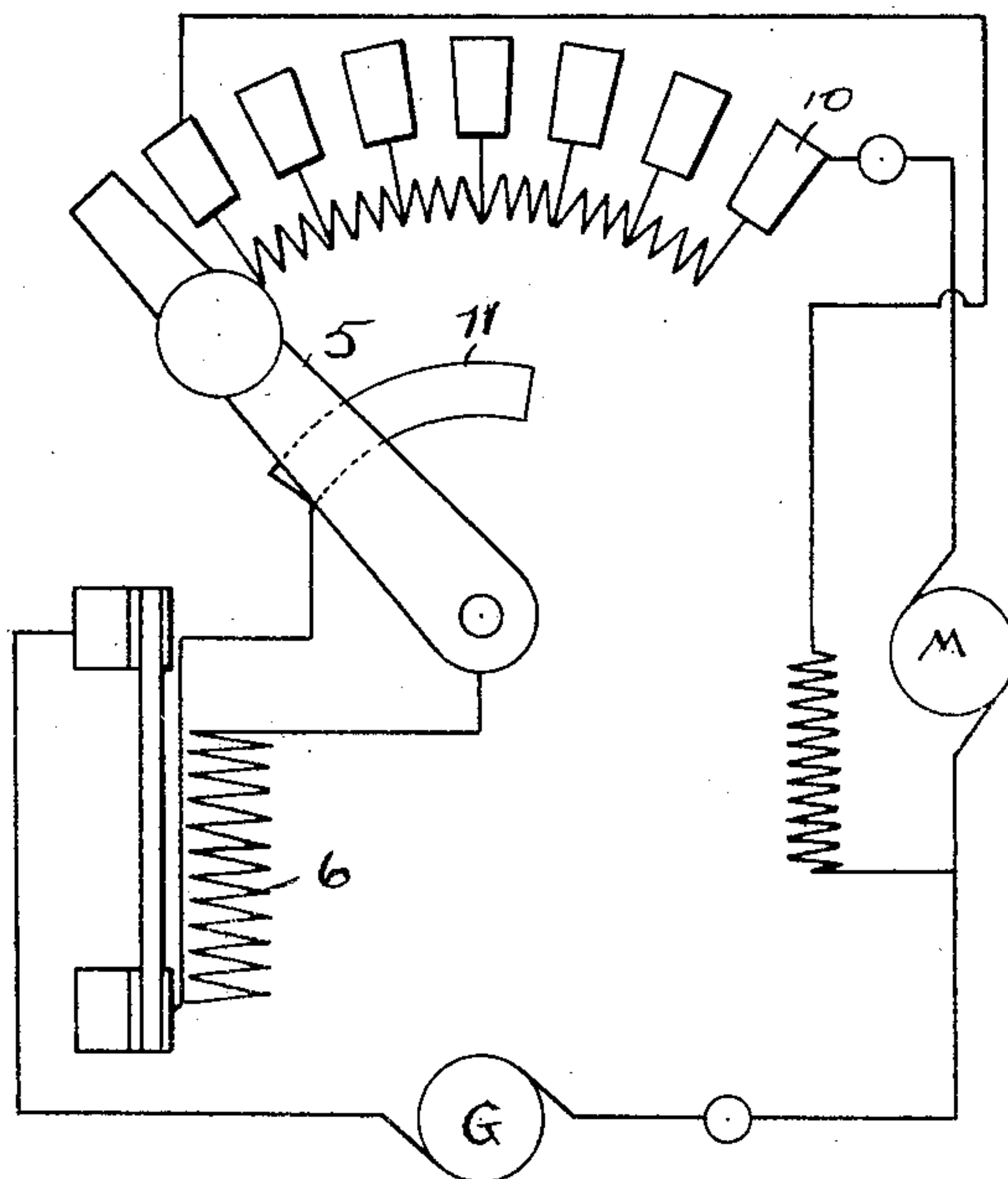


Fig 4



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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NEW JERSEY.

## RHEOSTAT AND CIRCUIT-BREAKER.

SPECIFICATION forming part of Letters Patent No. 661,196, dated November 6, 1900.

Application filed September 28, 1899. Serial No. 731,945. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM M. SCOTT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Rheostat and Circuit-Breaker, of which the following is a specification.

My invention relates to automatic magnetic circuit-breakers in combination with resistance-controlling means; and the object of my invention is to provide, in combination with a translating device and means for controlling the same, an automatic magnetic circuit-breaker connected therewith and means controlled by the controlling means for altering the point of actuation of the circuit-breaker.

In the use of an automatic magnetic circuit-breaker in combination with a resistance-controlling switch the temporary abnormal flow occurring upon turning the current into the translating device would actuate the circuit-breaker unless it were set at a higher point than would normally be desirable for the protection of the translating device. It is desirable, therefore, to provide for this temporary abnormal flow—that is, to provide during the cutting out of resistance or a certain part thereof that the circuit-breaker shall withstand a greater amount of flow without being actuated than it will after said resistance is cut out. I accomplish this purpose by the means illustrated in the accompanying drawings, of which—

Figure 1 is a front view of my device. Fig. 2 is a diagrammatic view showing the paths of the current. Fig. 3 is a diagrammatic view showing means for short-circuiting part from the actuating-coil, and Fig. 4 is a diagrammatic view showing means for shunting the actuating-coil.

Similar numerals refer to similar parts throughout the several views.

Referring to the drawings, 5 indicates the resistance-controlling switch, in series with which is the actuating-coil of the circuit-breaker, which in Figs. 1 and 2 is indicated by 6. The circuit-breaker is an automatic

magnetic circuit-breaker of the well-known "I. T. E." type, having a spring-actuated switch normally restrained by a latch adapted to be actuated by a core movable in the solenoid-coil 6. In opposition to coil 6 is a second coil 7, connected between the line and the last resistance-contact 9, or it may be between certain points of the resistance, so that while the current passes through the resistance it passes through both coils, and thus the effect of coil 6 is partially counteracted by the opposition of coil 7, and the device will thereby require a greater current for its actuation than it would were coil 6 unopposed. When, however, the resistance-controlling switch passes the resistance-contact 9 and reaches the contact 10 the coil 7 is cut out.

In Fig. 3 is shown a modification of the device above described, in that a single actuating-coil is used, the contact-strip 11 being so disposed that the resistance-controlling arm 5 will contact with it. This contact-strip 11 is connected with coil 6 intermediate its extremities, so that when the resistance-controlling switch 5 is in engagement with the strip 11 a portion of the coil will be short-circuited.

In Fig. 4 the contact-strip 11 is connected between the coil 6 and the line, serving as a shunt to said coil during the engagement therewith of the resistance-controlling switch 5.

What I claim is—

1. In combination with an electromagnetic circuit-breaker and a resistance-controlling switch, means for short-circuiting a portion of the actuating-coil during a prescribed movement of the resistance-controlling switch, substantially as described.

2. In combination with an electromagnetic circuit-breaker and a resistance-controlling switch, a shunt to the actuating-coil of the circuit-breaker adapted to be brought into or out of circuit by the movement of the resistance-controlling switch, substantially as described.

3. In combination with a resistance-controlling switch and an automatic magnetic circuit-breaker means controlled by the con-

trolling-switch altering the amount of current flow required for the operation of the circuit-breaker, substantially as described.

4. In combination with a controlling-switch  
5 an automatic magnetic circuit-breaker, means controlled by the controlling-switch for changing the ampere-point of operation of the circuit-breaker, substantially as described.

5. In combination with a resistance-controlling switch an automatic magnetic circuit-breaker, magnetic means controlled by the  
10 resistance-controlling switch for opposing the automatic magnetic actuation of the circuit-breaker, substantially as described.

15 6. In combination with a resistance-controlling switch and an automatic magnetic circuit-breaker a coil so disposed as to oppose,

during certain positions of the controlling-switch, the magnetism of the actuating-coil of the circuit-breaker, substantially as described. 20

7. In combination with a resistance-controlling switch and an automatic magnetic circuit-breaker, a coil in series with the resistance and so disposed with respect to the  
25 actuating-coil of the automatic magnetic circuit-breaker as to oppose the magnetism of the latter until the resistance is cut out, substantially as described.

WILLIAM M. SCOTT.

Witnesses:

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MAE HOFFMANN.