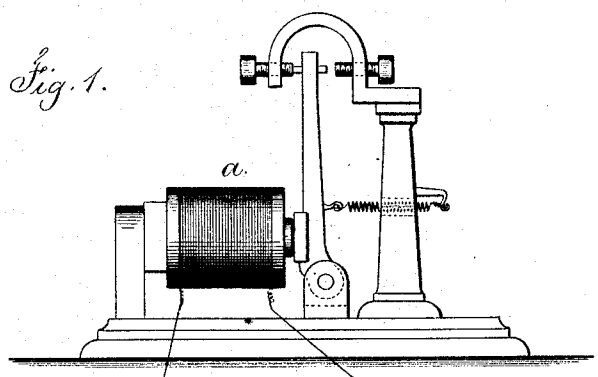
T. A. EDISON.

Adjustable Electro-Magnet for Relays, &c.

No. 160,405. Patented March 2, 1875.

Fig. 1.



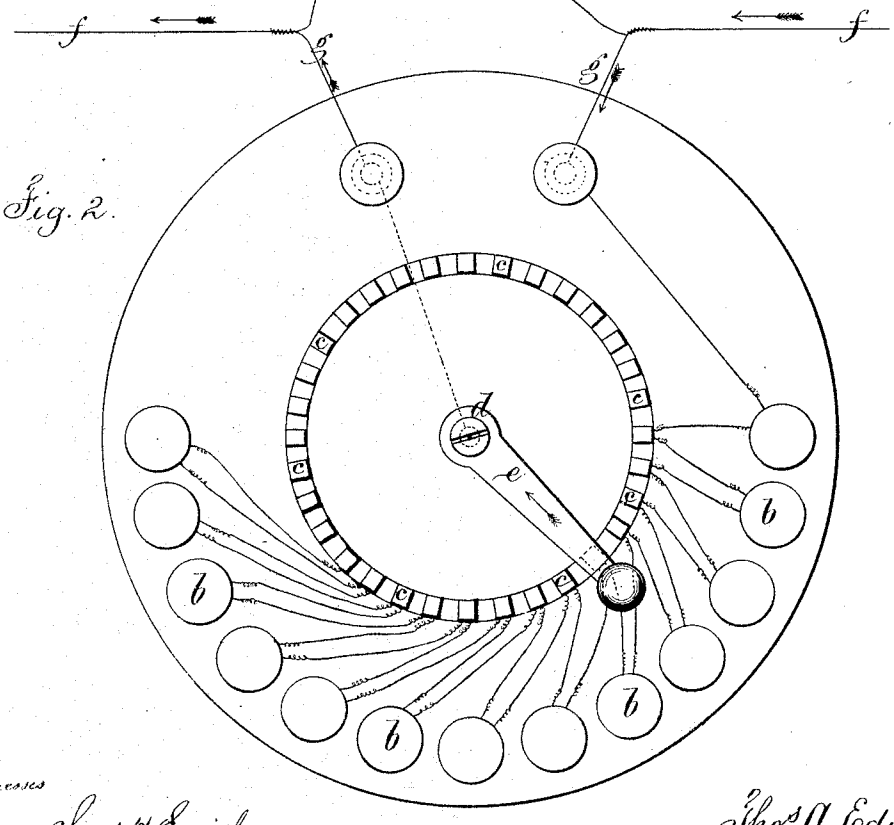


Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF NEWARK, NEW JERSEY, ASSIGNOR TO HIMSELF AND GEORGE HARRINGTON, OF WASHINGTON, D. C.

IMPROVEMENT IN ADJUSTABLE ELECTRO-MAGNETS FOR RELAYS, &c.

Specification forming part of Letters Patent No. **160,405**, dated March 2, 1875; application filed July 29, 1873.

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of of Newark, in the county of Essex and State of New Jersey, have invented an Improvement in Adjusting Electro-Magnets, of which the following is a specification:

With an electro-magnet employed for a sounder or receiving-instrument it is very difficult to adjust the action, because the intensity of the current varies greatly, and frequently false currents reach the magnet and prevent its proper action. To provide for these various circumstances, it is usual either to vary the tension of the retractile spring, or adjust the position of the armature and core in relation to each other.

My invention is made with reference to obtaining a uniformity of current in the electro-magnet, and avoiding the adjustment of the magnet or the parts thereof. I make use of a shunt or branch circuit connected at both sides of the electro-magnet, and in that shunt I place a regulator composed of several helices or resistance-coils connected to each other and to circuit-pins, and employ an arm that can be revolved upon a center and bring into the shunt greater or less resistance, and thereby directing the proper proportion of the current through the electro-magnet and allowing the remainder to pass through the shunt.

In the drawing, Figure 1 is a side view of the electro-magnet, and Fig. 2 is a plan of the shunt-regulator.

The electro-magnet *a* is of ordinary character, and employed as a sounder or otherwise. The shunt-regulator contains the resistance-coils *b b*, connected to each other through the circuit-pins *c c* in the center of which is the pivot *d* of the arm *e*. The line *f* is connected through the magnet *a* and by the shunt-wires *g* with the pivot *d* and first coil *b*.

If the arm *e* is turned so as only to include one coil *b* in the shunt, the resistance will be but little, and most of the current will pass by the shunt and but little through the electro-magnet *a*, and by turning this arm *e* any desired number of coils *b* will be included in the shunt, so that, as the resistance increases, so the proportion of current directed through the magnet *a* will increase also.

I do not claim a rheostat or adjustable resistance in a shunt-circuit, to regulate the current passing through a chemical receiving-instrument. I do not claim a shunt around an electro-magnet with a resistance that is not variable and serves to lessen the injury to the contact-points.

I claim as my invention—

The variable resistance *b*, placed in a shunt-circuit, in combination with an electro-magnet for equalizing action of the current in the electro-magnet and dispensing with the spring-adjustment, as set forth.

Signed by me this 23d day of April, A. D. 1873.

THOS. A. EDISON.

Witnesses:
GEO. T. PINCKNEY,
CHAS. H. SMITH.