Case 73.

T. A. EDISON.

Relay Magnets.

No. 141,777. Patented August 12, 1873.

Fig. 1.

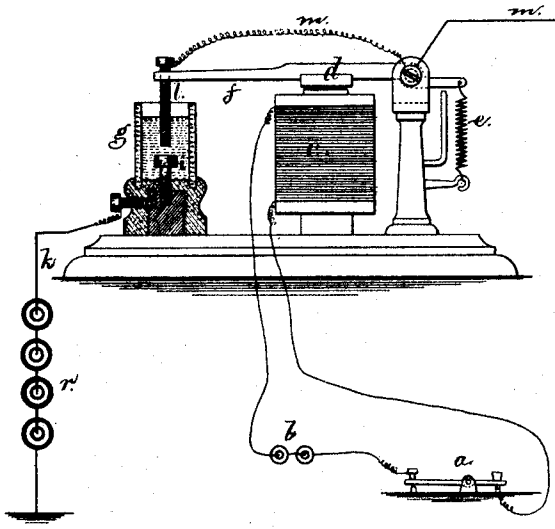
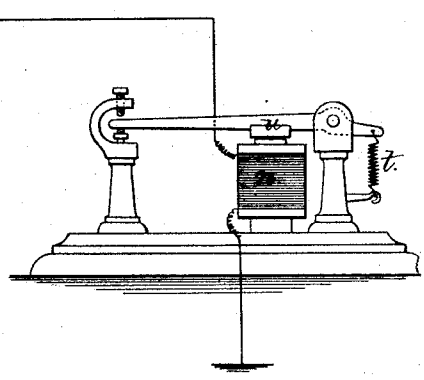


Fig. 2.



Witnesses,
Chas. A. Smith
Geo. D. Walker

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atty.

UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN RELAY-MAGNETS.

Specification forming part of Letters Patent No. **141,777**, dated August 12, 1873; application filed March 13, 1873.

To all whom it may concern:

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

Relay-magnets are employed to a large extent in various telegraphic operations. It is, however, found that the adjustment of the springs that draw back the armature and the burning of the contact-points by the spark are sources of constant annoyance.

My present invention is made for preventing the points burning out, and for avoiding adjustment of the retractile armature-springs.

I make use of metallic contact-points within a liquid, such as glycerine or water, so that the motion of one contact-point nearer to or farther from the other raises and lowers the electric tension in the telegraph-line, and operates a distant magnet without forming a spark or breaking the circuit.

In the drawing, Figure 1 is a side view of the relay-magnet with the circuit-cup in section, and Fig. 2 is a side view of the distant magnet.

The finger-key *a* is in a circuit from the battery *b;* so also are the coils of the relay-magnet *c*. The armature *d* and its lever *f* are moved by the spring *e* in one direction, and by the magnet *c* in the other. The circuit-cup *g* is made to contain water, glycerine, or other suitable liquid. In the bottom is the screw or point *i*, connected with the circuit-wire *k*, and the movable point or screw *l* passing through the lever *f* is connected with the other circuit-wire *m*, extending to the distant magnet *n*. The battery *r* is in the circuit to the magnet *n;* and it will now be understood that by adjusting the point *l* nearer to or farther from *i* the proportion of current passing to the magnet *n* can be adjusted so that, when the point *l* is moved by the magnet *c* nearest to *i*, the current from *r* will be sufficiently powerful to energize the magnet *n* and draw down its armature *u;* but when the circuit to the magnet *c* is broken at the key *a*, or otherwise, the movement of the point *l* away from *i* will lessen the tension in the circuit *k m* by the resistance of the intervening liquid, and weaken the power of the electro magnet *n*, so that its spring or weight *t* will draw away its armature.

The movement of the armature *u* may be made operative in effecting any desired telegraphic operation to which it is adapted. I, however, employ the same especially as a sounder, and in that case the battery *r* and circuit *k m* are local.

I am aware that contact-points within a liquid, such as oil or glycerine, have been employed in the circuit-breaker of an electric engine. In my improvement the circuit is not broken, but the relay-magnet or sounder is operated by rise and fall of tension, and the contact-points are adjustable instead of varying the armature-spring of the magnet.

I claim as my invention—

The adjustable contact-points acting within a liquid, in combination with the helix, armature, and spring of a sounder or relay, as set forth.

Signed by me this 7th day of March, A. D. 1873.

THOMAS A. EDISON.

Witnesses:

GEO. T. PINCKNEY,

CHAS. H. SMITH.