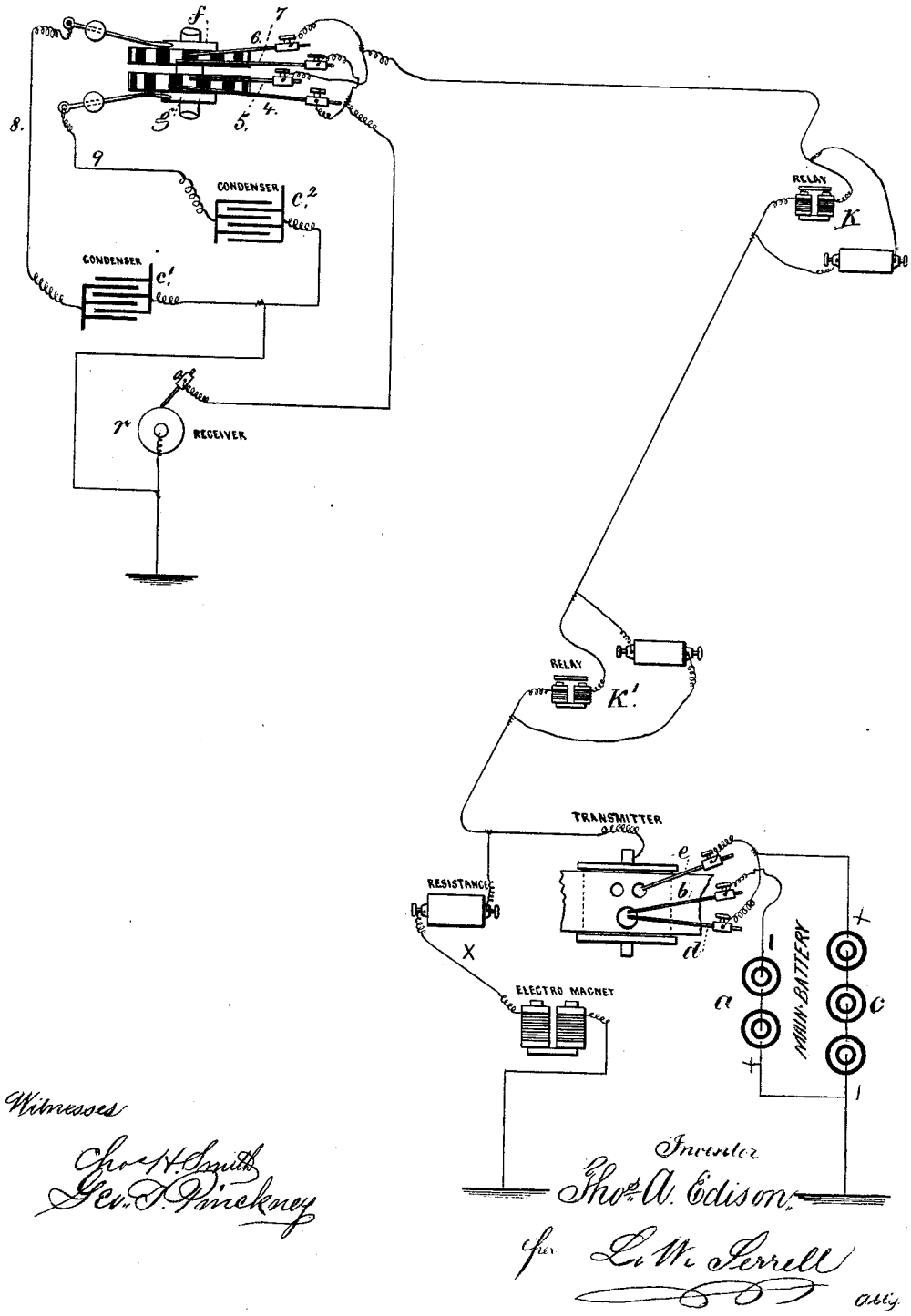
T. A. EDISON.

AUTOMATIC TELEGRAPH.

No. 195,751. Patented Oct. 2, 1877



Witnesses

Chas. H. Smith

Geo. T. Pinckney

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UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN AUTOMATIC TELEGRAPHS.

Specification forming part of Letters Patent No. **195,751**, dated October 2, 1877; application filed January 27, 1875.

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 Automatic Telegraphs, of which the following is a specification:

This invention is for bringing into operation condensers by alternately connecting and disconnecting them from the line by revolving wheels having alternate conducting and non-conducting surfaces.

In the accompanying diagram the improvement is illustrated.

At the sending-instrument the battery is divided, the part *a* being connected to the stylus *b*, and the part *c* to the stylus *d* and *e*, and these are so arranged for the purpose of weakening the middle portion of the dash, because the stylus *b* drops into the large perforations for a dash near the edge of that perforation, and remains a less time than the stylus *d*, and at that time throws into action a local circuit from the smaller battery *a*, that is opposed to that of the main battery *c*, and thus lessens the current in the middle of each dash-mark.

X is an ordinary branch circuit at the sending end for the static discharge from the line.

K K′ are signaling Morse relays used along the line. The helices of these relays are not to exceed one inch in length, and the coils are shunted with a resistance equal, or nearly so, to the resistance of the coils on said relays, so as to provide a route for the induction set up in the coils to circulate without going out upon the line to mutilate the signals.

The natural effect of this induction-current circulating within this circuit is to make the relay stick; but I have found that by decreasing the length of the cores and coils, the induction is decreased to such an extent that this result does not follow.

Two wheels or surfaces with alternating conducting and non-conducting surfaces *f* and *g* are employed in connection with the circuit-closing springs or points 4 5 6 7, and these wheels are revolved rapidly when the instrument is in work.

The hubs of *f* and *g* are connected by the wires 8 and 9 with the condensers C^1 C^2. The springs 5 and 6 are connected with the line, and 7 and 4 to the receiving-instrument *r*.

The condensers C^1 C^2 are, by preference, condensers in air without intermediate sheets of paper.

The wheels *f g*, in the act of rotating, connect the condenser C^1 in the circuit of the line at the same moment that the condenser C^2 is connected to the receiving-instrument. This is then disconnected and connected to the line, and C^1 connected to the instrument.

In alternately throwing these condensers, first on the line and then on the chemical receiving-instrument, with great rapidity, signals made on the line at the distant station charge these condensers, and the condensers transfer these charges to the receiver without it having any connection whatever with the line.

As the condensers can be made to hold these charges for a length of time, it follows that by this method currents sent on one line may be transferred by condensers into another line, or to a short circuit containing a chemical receiving-instrument. By this means the static effects are nearly overcome, and perfect signals are recorded.

I do not wish to confine myself to any particular mechanism for operating the condensers; but

I claim as my invention—

1. The method herein specified of transferring the signals of one electric circuit into another circuit by revolving circuit-closing wheels with conducting and non-conducting surfaces and connections to condensers and to the chemical recording-instrument, substantially as set forth.

2. The transmitting-instrument provided with a circuit-closing point and opposing battery for lessening the battery-power in the middle portion of the pulsation for a dash, as set forth.

Signed by me this 18th day of January, A. D. 1875.

THOS. A. EDISON.

Witnesses:

GEO. T. PINCKNEY,

CHAS. H. SMITH.