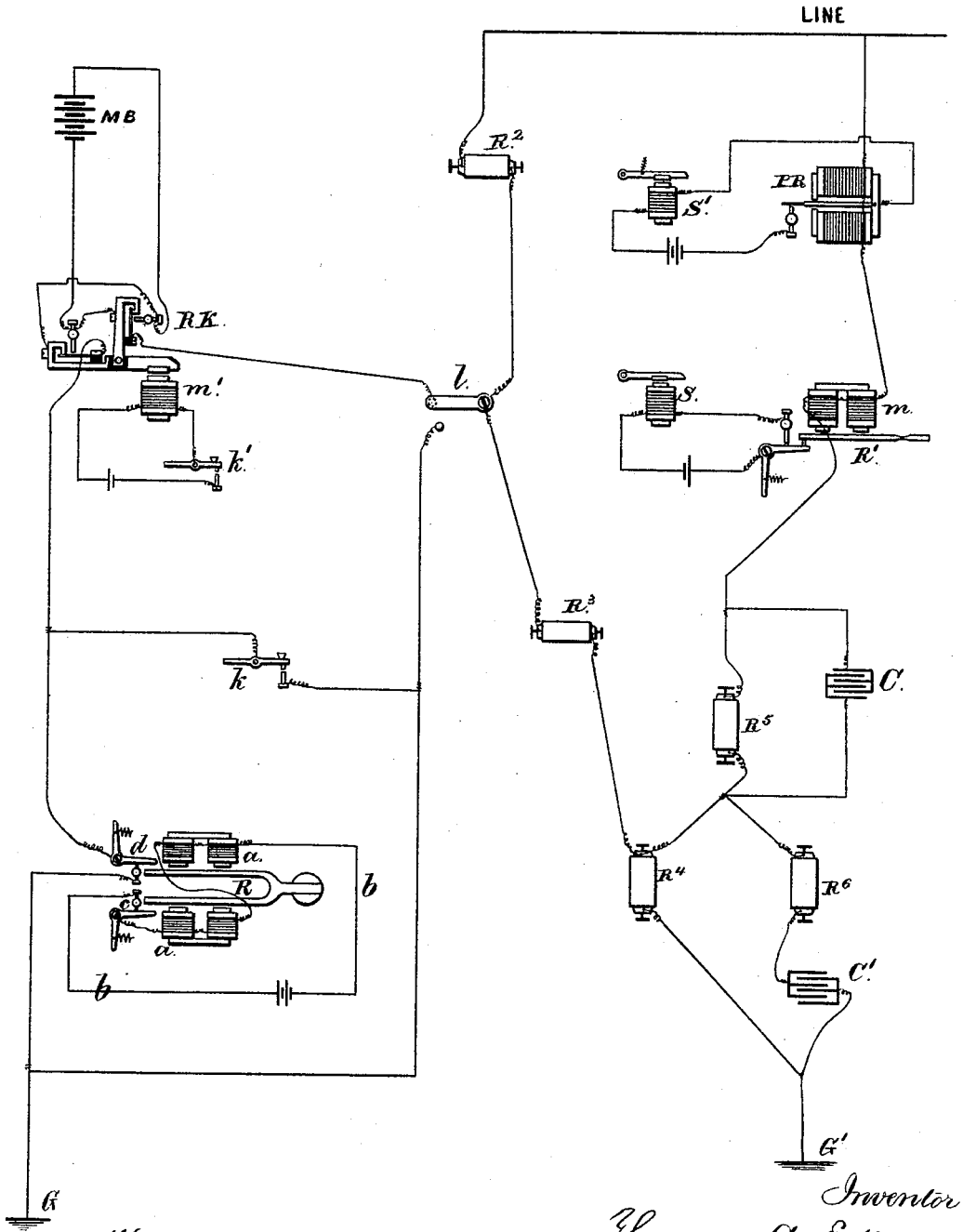
T. A. EDISON.

TELEGRAPHY.

No. 377,374. Patented Feb. 7, 1888.



Witnesses.
Chas. H. Smith.
Harold Serrell.

Inventor
Thomas A. Edison.
per Lemuel W. Serrell,
Atty.

UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF MENLO PARK, NEW JERSEY, ASSIGNOR TO THE WESTERN UNION TELEGRAPH COMPANY, OF NEW YORK.

TELEGRAPHY.

SPECIFICATION forming part of Letters Patent No. 377,374, dated February 7, 1888.

Application filed May 14, 1877.

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented an Improvement in Acoustic Telegraphs, of which the following is a specification.

This invention relates to the combination, in a telegraph system, with the line-wire and a battery, of a circuit preserving and reversing key, a vibrating circuit-breaker and a short-circuiting key at the transmitting-station, and a polarized relay and a reed or vibrating receiver and sounder at the other station, whereby one set of signals can be operated upon the line by the vibrations of the current and the key to short-circuit the same, and the other set of signals can be operated by the reversal of the current.

In the diagram annexed, R is a reed, fork, or equivalent vibrator kept in motion by the magnets *a*, local circuit *b*, and circuit-closer *c*. In the circuit between the earth G and battery M B is the circuit-closer *d*, that is opened and closed by the action of the reed R; and *k* is a key in the shunt-wire that passes around the circuit-closer *d*, so that when this key *k* is open the main battery will be pulsated over the line by the reed R and contact-point *d*; but when the key *k* is closed the pulsations will stop in consequence of the metallic connection being uninterrupted. At the receiving-station the reed R′ will be vibrated by the line-pulsations by the magnet *m* in the bridge-wire, but it will cease when *k* is closed. The signal will be given either by opening or closing the key *k*, according to the arrangement of the local circuit and sounder S, operated by the reed R′.

The reversing key R K is of ordinary construction, operated either by hand or, preferably, by the key *k′* and local circuit and magnet *m′*; and at the receiving-station the polarized relay P R responds to the reversals of current and gives the signals in the local circuit and sounder or other receiver, *s′*. The switch *l* serves to connect the line and artificial line directly to the earth to facilitate the adjustment of the distant receiving-instruments. The rheostats R^2 R^3 R^4 serve to proportion the resistance of the line and artificial line to G′, and the condenser C neutralizes the static charge and discharge in the bridge, and the condenser *c′* acts similarly in relation to the ground and artificial-line currents, the rheostats R^5 R^6 serving to proportion the resistance that diverts the currents to the condensers.

It will be evident that two reeds of different tone may be used for transmitting and corresponding reeds for receiving, so as to operate as a multiplex telegraph.

In Letters Patent No. 217,781, granted to me July 22, 1879, an instrument is shown that acts by electro-harmonic pulsations in the same circuit with instruments that respond to rise and fall of tension and change of electric polarity. In this application I have confined myself to the relay-instrument and the reed or reeds, so as to show the simpler forms of connections and to illustrate the manner in which the Morse system can be used with a harmonic or acoustic instrument without one interfering with the other.

I claim as my invention—

1. In a telegraphic system, the combination, with a line-wire and battery, of a circuit preserving and reversing key, a vibrating circuit-breaker and a short-circuiting key at the transmitting-station, a polarized relay, and a reed or vibrating receiver and sounder at the other station, substantially as set forth.

2. In a telegraphic system, the combination, with the main line, of a battery, a circuit preserving and reversing key, a vibrator, a magnet and local circuit for operating the same, yielding contacts *c d*, and a short-circuiting key and connections at the transmitting-station, and a polarized relay and sounder and a vibrating receiver and sounder at the receiving-station, substantially as set forth.

3. The combination, in a telegraphic system, of a reed or vibrating receiver, one transmitter composed of a vibrating circuit-breaker and short-circuiting-key, the other transmitter consisting of a circuit preserving and reversing key, and a polarized receiving-magnet to respond to the same, substantially as set forth.

Signed by me this 8th day of May, A. D. 1877.

THOS. A. EDISON.

Witnesses:
GEO. T. PINCKNEY,
HAROLD SERRELL.