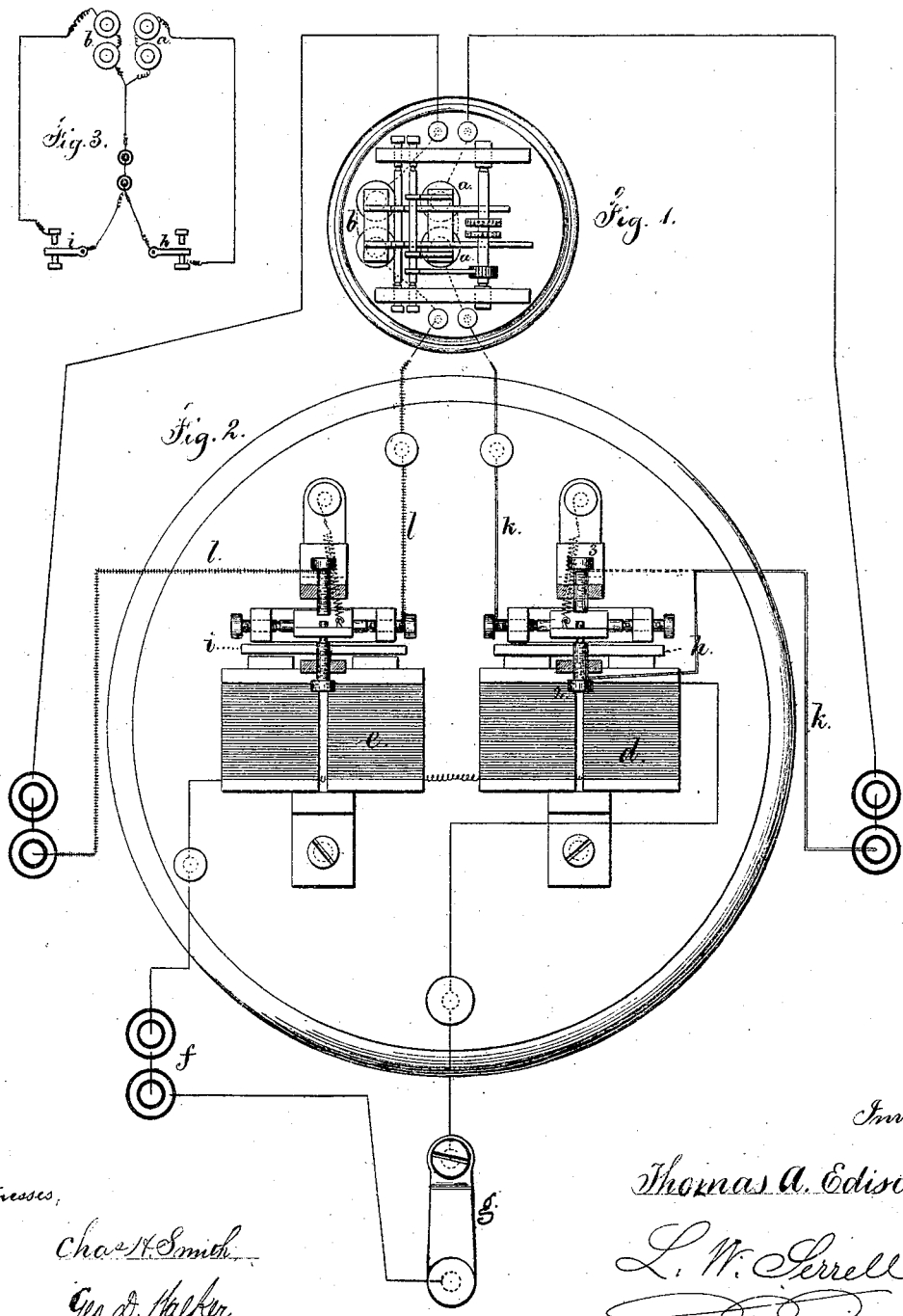


T. A. EDISON.  
 Printing Telegraphs.

No. 139,129.

Patented May 20, 1873.



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

Inventor,  
 Thomas A. Edison.  
 L. W. Serrell  
 atty.

# UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE GOLD AND STOCK TELEGRAPH COMPANY, NEW YORK, N. Y.

## IMPROVEMENT IN PRINTING-TELEGRAPHS.

Specification forming part of Letters Patent No. **139,129**, dated May 20, 1873; application filed February 18, 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 Transmitting-Instruments for Printing-Telegraphs, of which the following is a specification:

In this instrument there are two electro-magnets in a main-line circuit, in which, also, is the key or other instrument for opening and closing the circuit. The relay-magnets are provided with armatures and circuit-closers, and the retractile springs of the armatures are of different tensions, so that the relay, working a local circuit through the type-wheel magnet of the printing-instrument, energizes the same each pulsation in the main line. The local circuit of the printing-magnet remains broken, because the armature of that relay-magnet is kept toward the magnet by the residual magnetism until a pause in the transmission occurs sufficient to allow the printing relay-armature to recede and close the relay circuit to the printing-magnets. In this manner it is only necessary to pulsate the main-line circuit and pause to effect the printing when the type-wheel has been set.

In the drawing, Figure 1 shows a printing-telegraph instrument of any desired character, *a* representing the type-wheel magnet, and *b* the printing-magnet. Fig. 2 is a plan of the relay-instrument.

The magnets *d* and *e* are in the main-line circuit from the battery *f*, and *g* is a finger-key or other closer at the distant station to pulsate the current through *d e*. The armatures *h* and *i* are drawn back by springs of different tension, the spring of *h* being the most powerful, so that the armature *h* will respond to each pulsation of *g*, and close and open the local circuit *k* to the type-

wheel magnet *a* in the various printing-instruments; thereby the type-wheels will be set by such pulsations. During these pulsations the armature *i* will be held toward the electro-magnet *e*, because of the residual magnetism and slight tension of the retractile spring of the armature; but when a pause occurs the magnet *e* discharges itself, the armature *i* is drawn away, and the relay circuit *l* closed to the printing-magnets *b*, so as to give the impression. If the printing is to be effected when the local circuit *k* is closed, the connection will be made to the screw 3 instead of the screw 2. With circuits arranged as in the diagram, Fig. 3, only one local battery will be required, the connections and operations corresponding with those before described. The magnet *d* may be used for setting the type-wheel by direct action of the armature on pallets, and the armature of the magnet *e* be used to close the local circuit to the printing-magnet *b*, as before.

I claim as my invention—

1. Two relay-magnets in the main circuit, with retractile springs to the armatures of different tensions, in combination with relay circuits to the type-wheel and printing electro-magnets, respectively, of a printing-telegraph instrument, substantially as and for the purposes set forth.

2. Two relay-magnets in the main circuit, with armatures adjusted differently, in combination with a local circuit effecting distinct and different operations, according to the length of pause between pulsations in the main line, substantially as specified.

Signed this 13th day of February, A.D. 1873.  
THOMAS A. EDISON.

Witnesses:

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