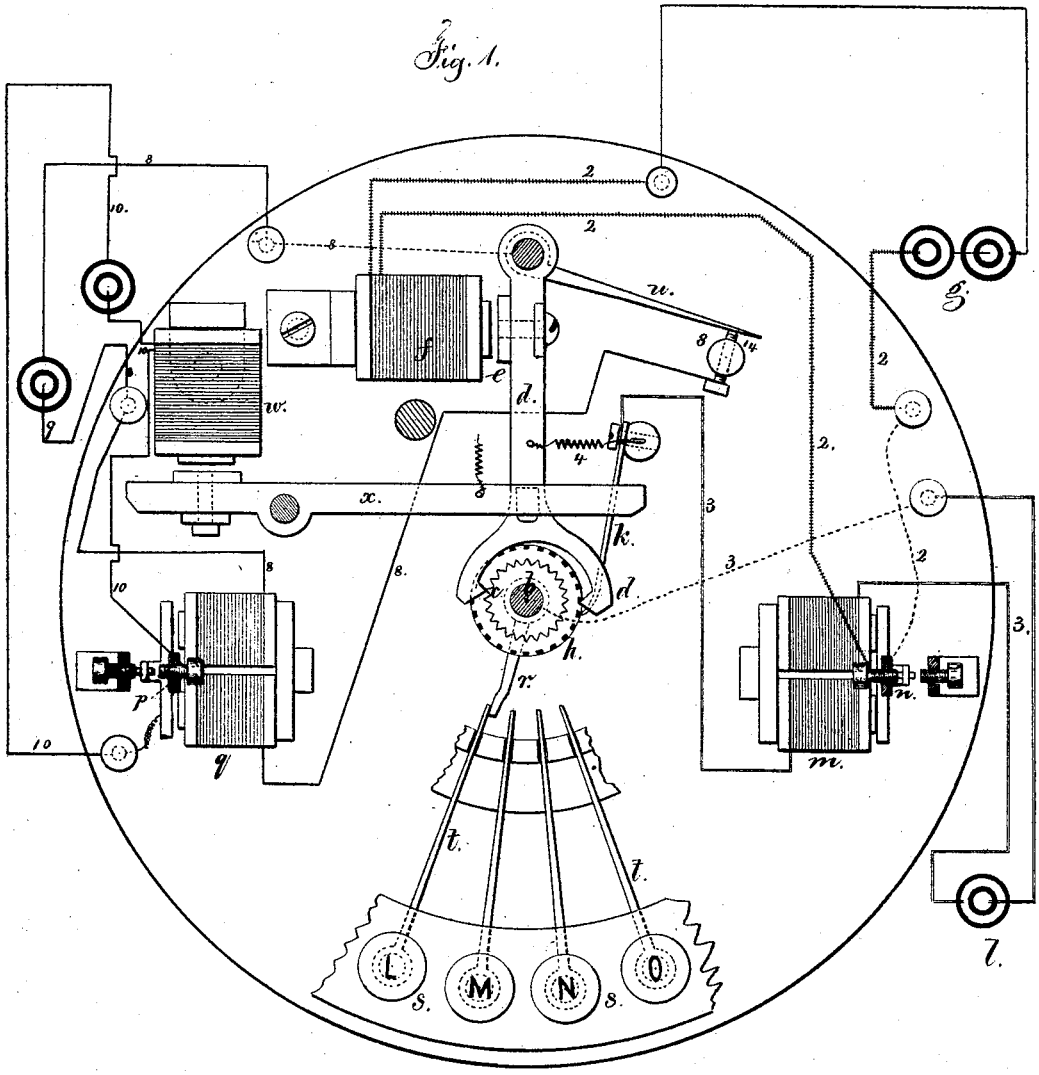
2 Sheets--Sheet 1.

T. A. EDISON.

Printing Telegraphs.

No. 140,487. Patented July 1, 1873.

Fig. 1.



INVENTOR

Thomas A. Edison

Per. L. W. Serrell

ATTY.

Witnesses.

Chas. H. Smith

Geo. H. Walker

2 Sheets--Sheet 2

T. A. EDISON.

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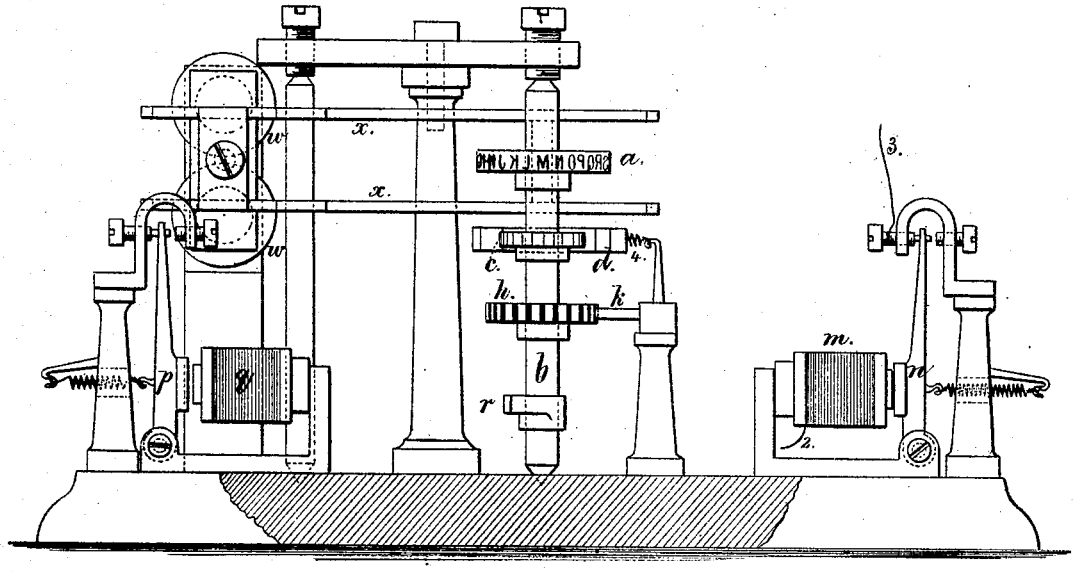
Fig. 2.



INVENTOR

Thomas A. Edison,

Per L. W. Serrell ATTY.

Witnesses.

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UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN PRINTING-TELEGRAPHS.

Specification forming part of Letters Patent No. **140,487**, dated July 1, 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 Improvements in Printing-Telegraphs, of which the following is a specification:

In this improvement the transmission is effected by pulsations through a break-wheel, relay-magnet, and main line; and as the pulsation energizes the relay-magnet it closes a local circuit to a type-wheel magnet that acts upon pallets to rotate the type-wheel and the break-wheel, and in so doing breaks the main-line circuit, and allows the main line to break the local, and the spring of the type-wheel armature to draw the latter back, and by the pallets move the type-wheel and break-wheel around further, and reclose the main circuit, and repeat the operations before described. These connections are resorted to to prevent too rapid movement. The main-line pulsations act in all the instruments of the line to set the type-wheels through the local circuits. The transmitting-instrument is stopped at a point when both circuits are broken, and in each receiving-instrument the pallet-lever, being drawn back by a spring, closes a local circuit to a magnet that operates the printing-circuit and energizes the printing-magnet.

In the drawing, Figure 1 is a plan representing portions of the instrument and the circuit-connections, and Fig. 2 is a side view of part of the instrument.

The type-wheel *a* is upon a shaft, *b*, that has a pallet-wheel, *c*, operated by a pallet-lever, *d*, the armature *e* of which is moved by the magnet *f*, that is in the circuit 2 2, from the battery *g*. A break-wheel, *h*, upon the shaft *b*, and a contact-spring, *k*, of suitable construction, are in the circuit 3 from the battery *l*, in which circuit is the relay-magnet *m*, the lever *n* of which opens and closes the circuit 2.

The operation of these parts is, that when *m* is energized the lever *n* closes the circuit 2; this energizes the type-wheel magnets *f*, and by the pallet-lever *d* the type-wheel is moved half a space. This at the transmitting-instrument breaks the circuit 3 by one of the non-conducting segments of the wheel *h* coming under the end of *k*. The circuit 3 being broken, the lever *n* falls back, breaking the circuit 2, and the magnets *m f*, discharging, allow the spring 4 to draw back the pallet-lever *d*, moving the break-wheel *h* far enough to close the circuit 3 again, and the operations are repeated, thus producing an automatic opening and closing of the circuits 2 and 3, and the speed of movement can be regulated by the tension of the armature-springs.

If the circuit 3 is the main line, then the circuit 2 will be local at the transmitting and receiving stations; but if the circuit 3 is local the circuit 2 may be the main line, and the circuit 3 will not be in use while receiving.

If a finger-key is depressed the arm *r* upon the shaft *b* is arrested by the lever *t* of the finger-key *s*, (a few only of these keys are shown, but they are of usual character,) and the parts are in the position shown; but both circuits 2 and 3 are broken, and the spring *u* closes the circuit 8 from the battery 9 to the local magnet *q*, the armature-lever *p* of which closes the printing-circuit 10, that passes through the printing-lever magnets *w*, so that a pause at the transmitting-instrument allows time for the energizing of the respective magnets *w* and the printing of the letter by the levers *x*.

The printing may be effected with one local circuit, if the spring *u* forms part of the circuit 10; and in cases where these instruments are used with two line-wires the line-wire forms part of the circuit 10 to the printing-magnet of the distant instrument or instruments. As the finger-key is raised the spring 4 draws the pallet-lever *d*, and turns the wheel *h* sufficiently to close the circuit 3, and the pulsations are set up as before. The time that the spring *u* is in contact with the circuit-screw 14 is momentary, except when there is a pause by depressing one of the keys; hence the printing-magnets will only be energized at that time.

I claim as my invention—

1. The combination of the type-wheel, pallet-wheel, circuit-wheel *h*, and pallets with the circuits 2 and 3 and electro-magnets *m* and *f*,

substantially as set forth, for automatically opening and closing the respective circuits and rotating the type-wheels, as set forth.

2. The printing-circuit closed by the spring *u* of the pallet-lever when the circuits 2 and 3 are broken, and the movement of the type-wheel arrested by the depression of a finger-key, in combination with the pallets that are moved by the spring and close the type-wheel circuit when the finger-key is released, substantially as set forth.

Signed by me this 13th day of February, A. D. 1873.

THOMAS A. EDISON.

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