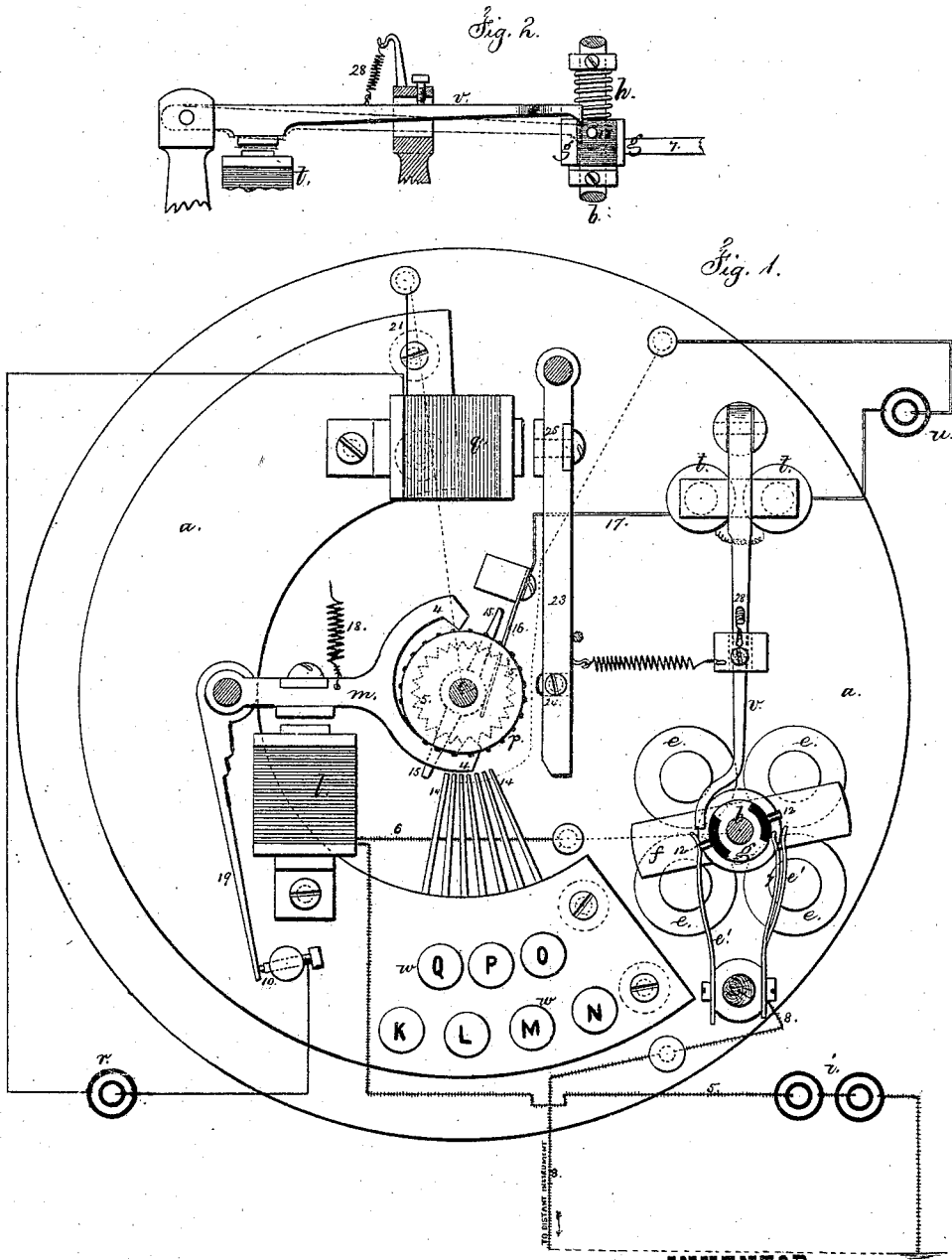


T. A. EDISON.

Improvement in Printing-Telegraphs.

No. 131,340.

Patented Sep. 17, 1872.



INVENTOR

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UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN PRINTING-TELEGRAPHS.

Specification forming part of Letters Patent No. 131,340, dated September 17, 1872.

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Newark, in the State of New Jersey, have invented an Improvement in Printing-Telegraph Instruments; and the following is hereby declared to be a full and correct description of the same.

In this instrument an electro-motor gives rotation to a vertical shaft, and upon this shaft is a pulsator which makes and breaks the circuit to the type-wheel magnet, and, by the pulsations transmitted, revolves the type-wheel and its shaft by a step-by-step motion.

The present improvement relates to means for arresting the rotation of the pulsator, when a finger-key is depressed, so as to break the circuit to the type-wheel magnet of the distant instrument or instruments in the circuit, and stop the type-wheels so that the desired letter may be printed by an electro-magnet that is brought into action by the act of arresting the movement of the type-wheel.

Upon the type-wheel shaft is an insulated arm, and when a key is depressed one end thereof is brought into the path of this arm, and stops the movement of the shaft and closes a circuit through a magnet which draws down an armature and lever, and brings the outer end of the lever in the path of a pin upon the pulsator, stopping the same upon the open circuit of the type-wheel magnet, and hence arresting the movement of all the type-wheels in that circuit; at the same time a local circuit to the printing-magnet is closed and the printing is effected.

In the drawing, Figure 1 is a sectional plan of said instrument, and Fig. 2 is a detached view of the pulsator and its stop-lever and magnet.

a represents the bed of the machine, and in suitable steps or bearings are mounted the pulsator and type-wheel shafts *b* and *c*, respectively. The shaft *b* is revolved continuously by suitable power, such as the electro-motor, composed of the helices *e e*, armature *f*, and connections (not shown in the drawing) from the springs *e'* to a battery, and upon this shaft is the pulsator *g*, composed of alternate conductors and non-conductors, and said pulsator revolves with said shaft *b* by frictional contact derived from the spring *h*. This pulsator *g*

makes and breaks the circuit to the battery *i* through the type-wheel magnet *l*, moving its armature and lever *m*, and communicating, by the pallets 4 4 and ratchet-wheel 5, the necessary step-by-step movement to the shaft *c* and its type-wheel *p*. This circuit from the battery *l* is from the battery *i*, by wire 5, to said magnet *l*, thence, by wire 6, to the bed of the machine, and by shaft *b*, pulsator *g*, spring-arm 7, and wire 8, to distant instrument, and by return wire or earth, back to battery.

When it is desired to stop the type-wheel at a particular letter and impress the same, the pulsator *g* must be arrested in its movement, and with the spring-arm 7 upon a non-conducting part of *g*, so as to break the circuit to the type-wheel magnets *l* and close a local circuit at 10 to the printing-magnet *q* from the battery *r*.

I arrest the movement of the pulsator as follows: *t t* is an electro-magnet in a circuit to the battery *u*, and when said magnet is charged its armature is attracted and the lever *v* drawn down to the position shown by dotted lines in Fig. 2, bringing its outer end into the path of one of the pins 12 12, which project from the non-conducting portions of the pulsator *g*, thereby stopping its movement.

When one of the range of finger-keys is depressed its outer end 14 is moved into the path of the insulated arm 15 on the type-wheel shaft *c*. This stops the revolution of that shaft *c* with the designated letter in position for printing, and at the same time closes a circuit through the hub of 15 and insulated spring 16, wire 17, magnet *t*, to the battery *u*; thence, by the bed *a* and finger-key arm 14, to the arm 15. The magnet *t* attracts its armature and brings the outer end of the lever *v* into the path of the pin 12, so as to take against one of said pins, as aforesaid, and stop the revolution of the pulsator.

The pins 12 are so located that when the pulsator is stopped the spring arm 7 is upon an insulated part of *g*; hence the circuit to the magnet *l* is broken and the armature and lever *m* are drawn away from the magnet *l* by the spring 18. This brings the arm 19 in contact with the screw 10, closing the circuit to the battery *r*, and the current from the same passes by 10, 19, *m*, *c*, *a*, and wire 21 to the magnet *q*

to charge the same and attract the armature 26, and effect the impression by the lever 23 and pad 24.

When the finger is removed from the depressed key *w* said key rises and the circuit is broken at 14 15 to the magnet *t*, and the lever *v* is drawn up by its spring 28, liberating the pin 12, and the pulsator again revolves with the shaft *b*, and makes and breaks the circuit to the magnet *l*, as aforesaid.

It is to be understood that the contact of 19 and 10 is so momentary that when the type-wheel shaft *c* is being revolved the magnet *g* does not become sufficiently charged to effect the printing.

It is also to be understood that the finger-keys are to be extended to form a semicircular range, or otherwise positioned to include all the characters, and that the other parts may be arranged in relation to each other in the most convenient positions. The paper-feed may be of any desired character.

I claim as my invention—

1. The pulsator, acting to make and break the circuit to the printing-magnet *l*, in combination with the arm 15, electro-magnet *t*, and connections for arresting the pulsator simultaneously with the stopping of the type-wheel, substantially as set forth.

2. An electric circuit closed by the contact of the revolving arm 15 with the finger-key stop 14, in combination with the type-wheel and actuating mechanism, substantially as set forth.

3. The arm 19, moved by the escapement-lever *m*, and acting to close the circuit to the printing-magnet *g*, in combination with the pulsator *g*, magnet *t*, and circuits, substantially as set forth.

Signed by me this 10th day of June, A. D. 1872.

T. A. EDISON.

Witnesses:

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