THOMAS A. EDISON.

Improvement in Printing-Telegraphs.

No. 126,530. Patented May 7, 1872.

Fig. 2.

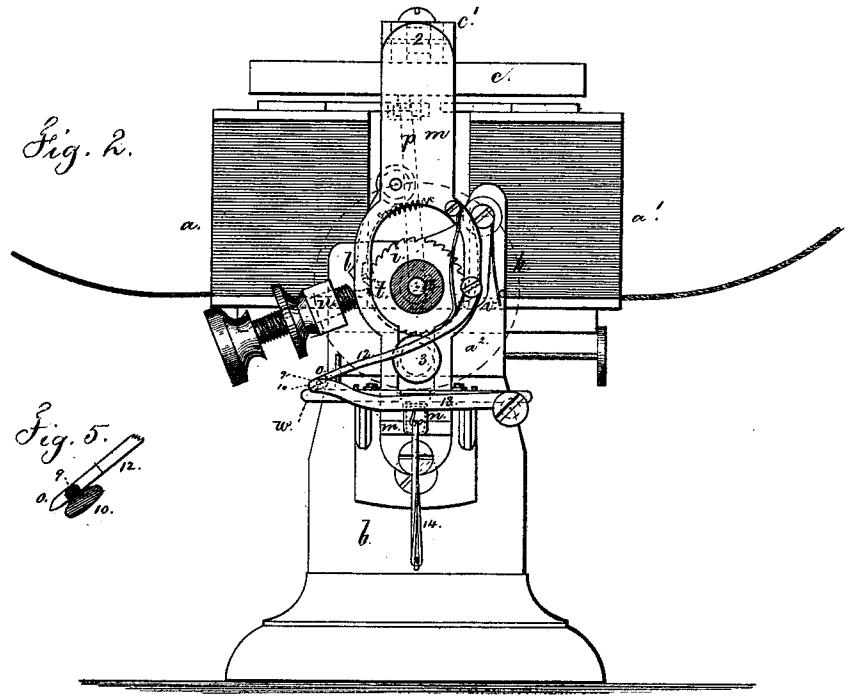


Fig. 5.

Fig. 1.

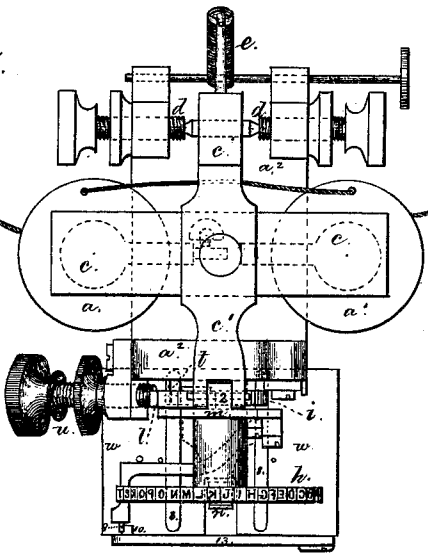


Fig. 3.

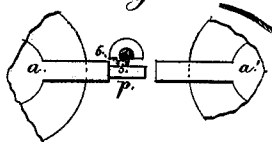
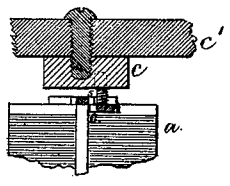


Fig. 4.



Witnesses

Chas. A. Smith

Geo. H. Walker

Inventor

Thomas A. Edison

Lemuel W. Serrell

atty.

UNITED STATES PATENT OFFICE

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

IMPROVEMENT IN PRINTING-TELEGRAPHS.

Specification forming part of Letters Patent No. 126,530, dated May 7, 1872.

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 and made a new and useful Improvement in Printing-Telegraphs; and the following is declared to be a full and correct description of the same.

My present invention consists of a printing-telegraph instrument in which the type-wheel is revolved and the printing and feeding mechanism operated by a movement communicated from the same armature of an electro-magnet. I make use of a type-wheel revolved by a step-by-step movement derived from the vibration of the armature of an electro-magnet, and between lateral arms from the cores of said electro-magnet is a swinging polarized bar, which, when attracted toward one of said arms by magnetism induced by a current of one polarity, allows the armature to be vibrated by pulsations of the same polarity and the type-wheel to be revolved; but a stop on said bar setting over a projection on the armature limits the upward movement of the armature and prevents the printing and feeding mechanism acting until the current is reversed, which then throws the polarized bar to the other pole of the electro-magnet, disconnecting the stop from the armature and allowing the same to have its full upward and downward movement to effect the printing and feed of the paper.

In the drawing, Figure 1 is a plan of my improved instrument. Fig. 2 is an elevation of the same with the type-wheel removed, but its position shown by dotted lines. Figs. 3 and 4 are detached views illustrating the device which limits the movement of the armature, and Fig. 5 is a sectional view of a portion of the feeding device.

The electro-magnet *a* a^1 is supported in a frame, a^2, upon the base *b*, and the armature *c* of said magnet is secured to the lever *c'*, which swings upon the screw-centers *d d*. The spring *e* gives the upward movement to said lever *c'* and the parts connected to it. *h* is the type-wheel, upon a sleeve fitted to revolve freely on a gudgeon extending from the frame a^2, and to this sleeve is secured the ratchet-wheel *i*, which is turned, to rotate the type-wheel, by the pawl *l* pivoted upon the vertical bar *m*. This bar *m* is connected at its upper part by a joint, 2, to the lever *c'*, which allows a free vertical movement to the bar, and it is guided by the pin and slot 3. This bar is made with an opening so as to pass around the gudgeon and sleeve of the type-wheel, and said bar carries the impression-pad *n* and paper-feeding dog or clamp *o*. *p* is the polarized bar between the lateral arms of the cores of the magnet *a* a^1, and it swings upon the center 15. At the top and upon one side of the bar *p* is a stop, 5, and upon the under side of the armature *c* is an L-shaped projection or stop, 6. When a pulsation of one polarity is sent through the magnet *a* the bar *p* is repelled from the core or arm of the magnet a^1, and attracted to the position shown most clearly in Fig. 3, where the stop 5 is immediately over the stop 6, and in this position the armature can be vibrated by pulsations of that polarity and the type-wheel revolved by the lever *c'*, bar *m*, pawl *l*, and ratchet *i*, to bring the desired letter in position for printing; but an impression will not be made, because the stops 5 and 6 limit the motion of the armature and prevent the lever *c'* and connected parts receiving the full upward movement necessary for printing. When the polarity of the current is reversed the bar *p* is attracted by the magnet a^1, which disconnects the stops 5 and 6 and allows the spring *e* to give the full upward movement to the lever *c'*, bar *m*, and impression-pad *n*, and effect the printing before the accumulation of force in the-magnet *a* a^1 is sufficient to draw down the armature and feed the paper at the same time that the type-wheel is moved. The full downward movement of the lever *c'* and bar *m* actuates the dog *o* and feeds the paper the proper distance. The polarity of the current is now reversed, and the bar *p* will be moved to its normal position with the stop 5 over the projection 6; but there is sufficient play to allow the armature *c* to be vibrated so that the necessary movement is given to the lever *c'*, bar *m*, and pawl *l* to rotate the ratchet-wheel *i* and type-wheel *h* as before. A pin, *t*, upon the frame a^2 takes against the under side of the pawl *l* and lifts it from contact with the teeth of *i*, when the full downward movement is given to the bar *m*, and prevents said wheel being turned more than one tooth by such

downward motion of the bar. *u* is a set-screw to determine the downward movement of the bar *m* and stop the rotation of the ratchet *i* and type-wheel *h*, and *v* is a pawl to prevent the ratchet *i* turning backward. The paper passes over the table *w* and beneath the spring-fingers 8 8, and in this table is an opening to allow the pad *n* to press the paper against the type-wheel and make the impression. The feeding-dog *o* is, at the outer end of an arm, 12, pivoted to the bar *m*, and at the side of this dog *o* is a pin, 9. When the type-wheel is being rotated the pin 9 slides up and down a yielding incline, 10, (see Fig. 5,) which keeps the dog *o* off of the paper; but upon the full upward movement being given to the bar *l* to effect the printing the pin 9 is moved up over the top of 10, and falls to the rear of said incline, bringing the dog in contact with the paper, and upon the full downward movement of the bar *m* the pin 9 slides under this incline 10, and the dog *o* feeds the paper forward the required distance. This incline 10 is at the outer end of an arm, 13, that is kept to the table *w* by the spring 14 so as to be raised by the pin 9 running beneath it, and then said pin 9 plays upon the surface of 10, keeping the dog *o* from contact with the paper while the type-wheel is being moved.

I claim as my invention—

1. The bar *p* and stops 5 and 6 to regulate the extent of motion allowed to the armature *c* of an electro-magnet, substantially as set forth.

2. A type-wheel rotated by a step-by-step motion and an impression-pad moved simultaneously, in combination with an electro-magnet and mechanism for regulating the extent of motion of the armature for moving the type-wheel or effecting the impression, substantially as set forth.

3. The yielding incline 10 and paper-feeding pawl *o*, brought into action by an increased movement of the armature of an electro-magnet, substantially as set forth.

4. An impression-pad moved by a spring to give the impression when the current is broken in an electro-magnet, in combination with a type-wheel, substantially as set forth.

Signed by me this 14th day of February, A. D. 1872.

T. A. EDISON.

Witnesses:

CHAS. H. SMITH,

GEO. T. PINCKNEY.