

UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN PRINTING-TELEGRAPHS.

Specification forming part of Letters Patent No. **138,869**, dated May 13, 1873; application filed October 22, 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 an Improvement in Printing-Telegraphs, of which the following is a specification:

This invention relates to modifications of and improvements upon the printing-telegraph machines heretofore patented by me. The features of improvement relate, first, to a unison mechanism that operates after two or more revolutions of the type-wheel, but is liberated and restored to a normal position each time the printing-lever is moved; second, to a peculiar paper-feeding mechanism that throws a tooth or pawl upon the paper, and then moves the same, and liberates the pawl from the paper before the return movement of the parts; third, to a means for partially rotating the type-wheel upon its axis to bring into position for use one set of characters, and throw out of use the alternate characters.

In the drawing, Figure 1 is a vertical section, and Fig. 2 is a partial front view, showing my present improvements.

The type-wheel magnet *h* acts through the armature and lever *h'* to set the type-wheel *l*, by a step-by-step movement given through the pallets *i*, escapement or ratchet wheel *k*, and shaft *g*. To insure greater rapidity in the discharge of the magnetism induced in the cores of the electro-magnet *h*, the said cores are grooved longitudinally, as shown in Fig. 3, which with a printing-telegraph is highly advantageous, because of greater rapidity, and avoiding the risk of inaccuracy arising from a sluggish backward motion in the armature. The inking-roller 21 is pressed toward the type-wheel *l* by the spring 22, upon the paper-reel arms 20, so that the sudden rotation of the type-wheel *l* will not swing said inking-roller away from contact with the types. This spring 22 can be turned aside when the inking-roller is to be lifted. Upon the shaft *g* is a tooth, *o*⁷, that comes into contact successively with the teeth 54, and moves the arm *o*⁴ down gradually until the end thereof is in the path of the stop 50, thereby arresting the type-wheel at a unison-point after the

type-wheel has made two or more revolutions without the impression-lever *m'* being operated; but whenever the impression-lever is moved, the arm *o*⁴ is raised by the finger 53 acting beneath it. In this manner the unison is prevented from coming into action except when the type-wheels are rotated with special reference to bringing a number into unison. The finger *o*⁴ is sustained by a sleeve around the cross-bar *a*, and there is a spring, *b*, to apply the required friction to hold the parts in the position to which they are moved. The type-wheel *l* is upon a sleeve, *o*, surrounding the shaft *g*. The cam-bar 36 is sustained in guides upon the shaft *g*, and can be moved endwise by the T-lever *o*¹; and the shape of the cam 36 is such that it acts upon the sleeve *o* and type-wheel, to turn the same the extent of the distance from one character to the next; hence, where the step-by-step motion turns the type-wheel the distance occupied by two characters (for rapidity) the aforesaid cam 36 will bring into action one set of characters and throw out of action the other set of characters placed alternately around the type-wheel. The movement is given endwise to the cam 36 by the pin 30 or 31, upon the printing-lever coming into contact with the T-lever *o*¹, when the type-wheel is rotated around to the proper point for bringing such lever *o*¹ over the pin 30 or 31, after which the printing-lever is moved. The feeding-pawl *u* is upon an arm, *v'*, and its lever is connected by a link, 68, to the printing-lever *m'*, and the arm *v'*, is connected also to *m'*, but by a slotted link, so that as the lever *m'* rises, the strip of paper is first seized between the roughened end of *u* and the roller *v*; then the link 62 swings all the parts together. On the return movement the slot in 62 allows the pawl *u* to be lifted off the paper before the arm *v'* is swung back by the link 62.

I claim as my invention—

1. The tooth *o*⁷ and stop 50 upon the shaft *g*, in combination with the arm *o*⁴, teeth 54, and finger 53, moved by the printing-lever *m'*, the parts being arranged and operated substantially as set forth.

2. The pawl *u* upon the arm *v'*, and con-

ned by the link 68 with the lever *m'*, in combination with the slotted link 62, that swings the lever *v'* to feed the paper, substantially as specified.

3. The cam 36 moved by the T-lever *o'* and pins 30 31 upon the printing-lever, in combination with the type-wheel *l* and sleeve *o*, substantially as and for the purposes set forth.

Signed by me this 16th day of October,
A. D. 1872.

T. A. EDISON.

Witnesses:

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