

T. A. EDISON.

Automatic Telegraphy and Perforators Therefor.

No. 151,209.

Patented May 26, 1874.

Fig. 1.

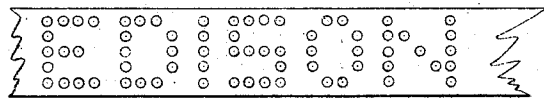


Fig. 2.

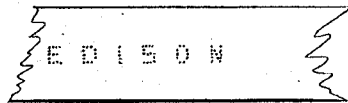
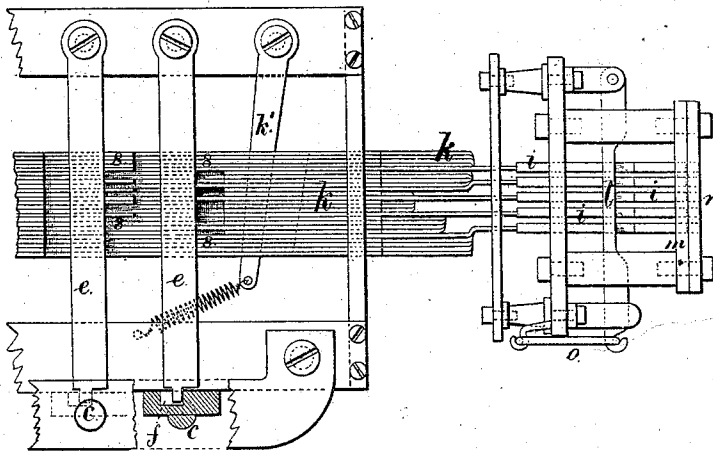


Fig. 3.



Inventor

Witnesses,

Chas. H. Smith  
Geo. D. Quinney

Thomas A. Edison  
per Lemuel W. Perrell.

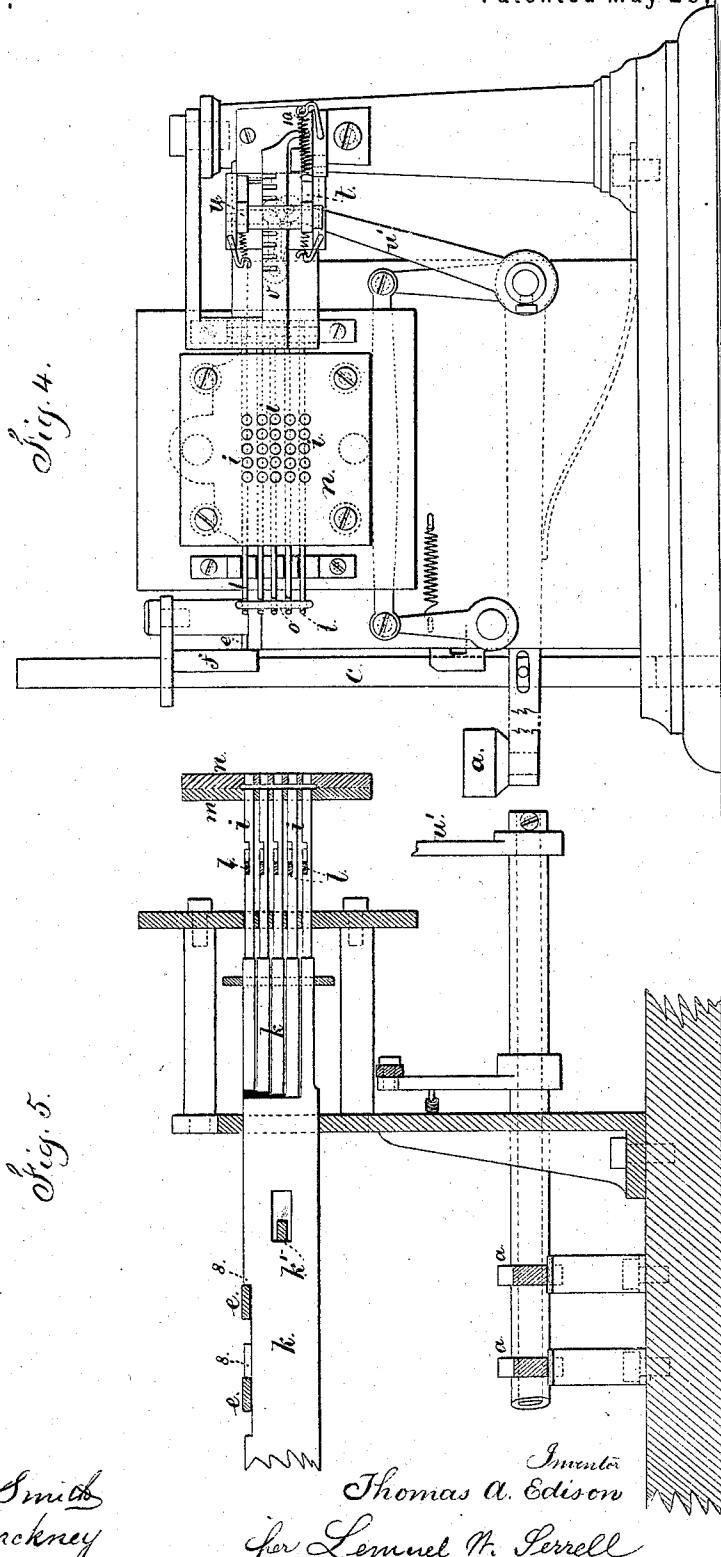
att'y.

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# UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF NEWARK, NEW JERSEY.

## IMPROVEMENT IN AUTOMATIC TELEGRAPHY AND IN PERFORATORS THEREFOR.

Specification forming part of Letters Patent No. **151,209**, dated May 26, 1874; application filed September 2, 1873.

CASE 83.

*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 Automatic Telegraphing; and the following is declared to be a correct description of the same.

In the Morse system of telegraphy the operator frequently receives the message by sound, and writes the same out as received. In the printing-telegraph system, the printed strip itself is usually delivered as received. In the ordinary automatic system, the paper has to be punched or composed; and, at the receiving-station, the message on the chemical paper has to be translated and written out by hand, or printed by a key printing-instrument. Each system has its defects or disadvantages. The Morse system is slow, and requires a large number of wires. The printing-telegraphs are expensive, liable to inaccuracies and injury, and limited in speed to the fingering of the keys. The automatic system is rapid on the line, but the composing of the message and the writing of it out at the receiving-station are comparatively slow operations.

The object I have in view is to print the message chemically. Thereby the message, as received upon a strip of paper, is ready to be folded and sent to its destination; and the rapidity is equal to any automatic transmission. I accomplish this object by perforating the strip of paper used for transmitting with groups of holes, representing by each group a letter or character, the perforations being arranged to produce, as nearly as possible, the block or Roman letters or characters.

The transmission of the message by the line-wires may be in the usual manner, by a roller or stylus, and a line-wire to each row of perforations, so that, if there are five rows of perforations, there will be five stylus-points or rollers, each connected to a line-wire, and, at the receiving-instrument, there will be five pens or stylus-points near together, and the letter received will be in dots corresponding to the position of the perforations in the transmitting-paper, and, by their aggregation in groups, the letters will be clearly delineated, and

formed almost as perfectly as printed characters, so that the strip of chemical paper can be delivered, and the rewriting or printing of the message dispensed with. The message, as received, being the counterpart of that transmitted, the perforated paper at the transmitting-station becomes a perfect record of the message, and the line can be worked up to its utmost capacity, because the paper can be perforated for transmitting about as rapidly as an ordinary printing-telegraph can be operated, and as many perforating operators and machines can be used as are necessary for the work that is to be done on the lines.

I have herein indicated the mode of using this improvement with five line-wires; but I contemplate to use the transmitting-paper, perforated as herein described, with transmitting and receiving mechanism that will operate with only one line-wire, and are to form the subject of a separate application.

In the drawing, Figure 1 represents a piece of paper with perforations, and adapted to use in transmitting. Fig. 2 shows the chemical paper with the same word printed thereupon by the dots running together, or being sufficiently close to each other to show the respective letters. Fig. 3 is a plan of a portion of the perforating-machine. Fig. 4 is an elevation endwise of the punches, and Fig. 5 is a partial section longitudinally.

I find that five lines of perforations are the most convenient for producing perforations in imitation of block letters or characters, and have shown and described such; but I am not limited in that respect.

Reference is hereby made to Letters Patent No. 121,601, granted to me December 5, 1871, for a machine for perforating paper for telegraphic purposes, which, with the modifications herein set forth, is adapted to punching the characters in the strip of transmitting-paper.

Instead of having two lines of punches, *i i*, as in aforesaid patent, these punches *i i* are twenty-five in number, positioned in a square of five each way, and as close together as convenient. Each punch is connected with its slide-plate *k*, and these slide-plates *k* are side

by side, and supported in the frame of the machine, so that they can be moved endwise with facility, and actuate the punches to which they are connected, respectively. The punches slide in the plate *m*; and *n* is the die-plate, as in said patent. There might be a spring to each slide-plate *k* and punch *i*; but I have shown a lever, *k'*, passing through mortises in the plates *k*, and provided with a spring to draw all the punches and slide-plates back to their normal position after they have been actuated.

If the punches are separate from the slide-plates, each row may be provided with a lever, *l*, and spring *o*, to return or draw back the punches; and said levers *l* act within notches in the punches, as shown.

The shoulders or projections 8 are provided upon the slide-plates *k*, contiguous to the respective pressers *e*, and these projections 8 are only upon such of the slide-plates that require to be moved by the presser to which they are adjacent, to operate the punches required to perforate the letter corresponding to the one on the finger-key *a* that is connected to the particular presser *e*, as in aforesaid patent; and I remark that the slide-bars *c* and connecting-cams *f*, or forks to move the pressers *e* by the finger-keys *a*, may be similar to those shown in said patent, and the lever *u'*, feeding-clamp *t*, pawl *u*, rack-bar *v*, and pawl 10 are similar to the parts shown, and they operate in the manner described in the aforesaid patent, and therefore do not require further description.

From the illustration given in Fig. 1, the general character of the groups of perforations

will be apparent, and, in the square of twenty-five punches, the proper ones can easily be selected to perforate any given letter or character, sufficiently like block letters to be reliably read, at the receiving-station, on the chemical paper.

I am aware that types have been used in telegraphing characters, and also that letters have been made by punching slots and circular holes; but this mode of perforating could not be accomplished by one group of punches to perforate any letter by selecting punches from that group. Furthermore, the slots under the paper are liable to tear.

I claim as my invention—

1. A strip of telegraphic transmitting-paper perforated with holes of uniform size, grouped together to represent ordinary letters or figures, substantially as set forth.

2. The mechanism for making groups of perforations in a strip of paper in imitation of letters or characters, the same consisting of punches massed together in a square, or nearly so, and mechanism intervening between such punches and the finger-keys, for selecting from such mass of punches those that are required for perforating characters corresponding with the characters upon the respective finger-keys, substantially as set forth.

Signed by me this 25th day of August, A. D. 1873.

THOMAS A. EDISON.

Witnesses:

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