2 Sheets--Sheet 1.

T. A. EDISON.

Perforators for Automatic Telegraphy.

No. 147,312. Patented Feb. 10, 1874.

Fig. 3.

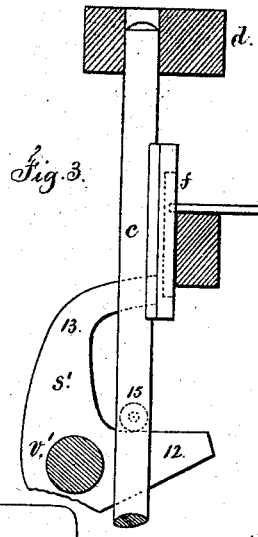
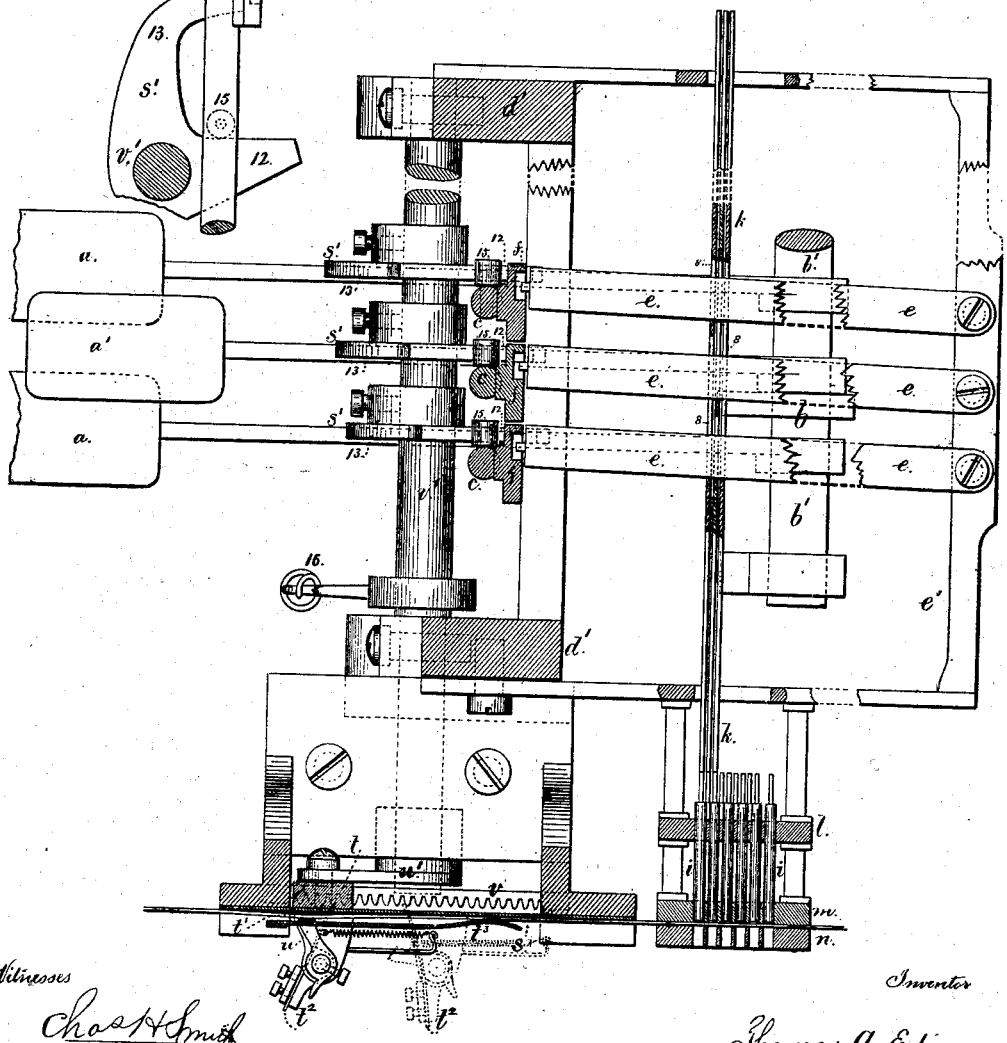


Fig. 1.



Witnesses

Chas. F. Smith

Harold Sinnell

Inventor

Thomas A. Edison

Lemuel W. Serrell

atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

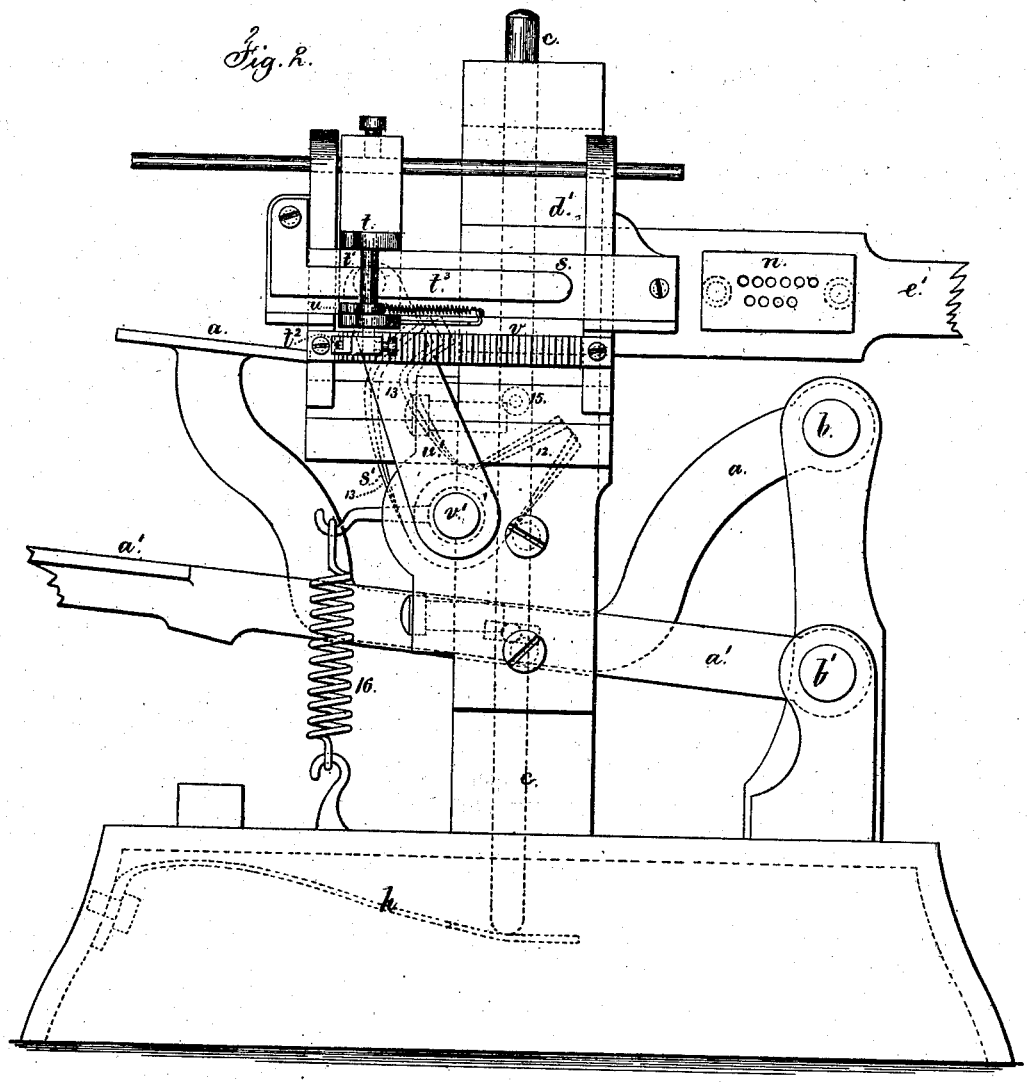
2 Sheets--Sheet 2.

T. A. EDISON.

Perforators for Automatic Telegraphy.

No. 147,312. Patented Feb. 10, 1874.

Fig. 2.



Witnesses,

Chas. A. Smith.

Harold Serrell

Inventor

Thomas A. Edison

Lemuel W. Serrell

atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF NEWARK, NEW JERSEY, ASSIGNOR TO HIMSELF AND GEORGE HARRINGTON, OF WASHINGTON, D. C.

IMPROVEMENT IN PERFORATORS FOR AUTOMATIC TELEGRAPHY.

Specification forming part of Letters Patent No. **147,312**, dated February 10, 1874; application filed July 29, 1873.

CASE 75.

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 Machinery for Perforating Paper for use in Automatic Telegraphing, of which the following is a specification:

This invention is an improvement upon that set forth in Letters Patent No. 121,601, granted to me December 5, 1871, and a reference is hereby expressly made to said patent for a more full and complete description of those parts which are herein only generally referred to.

My present improvement relates to the paper-carrier which feeds the paper, and to the means for giving the feed-motion to said paper-carrier.

In the drawing, Figure 1 is a plan, partially in section, of a portion of my machine. Fig. 2 is an end elevation of the paper-feed and dies; and Fig. 3 is a detached section, showing one of the cams and slide-bars for giving the feed-motion, and also showing the cam for actuating the presser-lever.

The finger-keys *a a'* are in two ranges, and mounted on the fulcrum-shafts *b b'*, and to these keys the vertical slide-bars *c c* are jointed. The cams *f f* are secured to said slide-bars, and they actuate the presser-levers *e e* and slide-plates *k k*, which latter operate the punches *i*, that perforate the strip of paper in the die *m n*, and these parts thus far described are similar in construction and operation to the corresponding parts set forth in aforesaid patent. The rock-shaft *r'*, which gives motion to the paper-carrier, is mounted in the frame *d'*, and upon this shaft are the cams *s'*, one for each slide-bar *c*, and each cam is made with the arms 12 and 13, and is upon a hub clamped to said shaft by a set-screw. The roller 15 upon the slide-bar *c* takes against the arm 12 of *s'*, and gives a partial rotation to the shaft *r'*, when the bar *c* is moved by a finger-key being depressed, and the amount of motion given to said shaft is determined by the arm 13 of *s'*, which comes against the rear of the cam-plate *f* on *c*, as shown in Fig. 3, or against the bar *c* itself, and acts as a stop to prevent the shaft being turned beyond the point necessary for giving the proper motion to the paper-carrier *t*.

These cams *s'* are easily adjusted upon the shaft *r'*, and each cam is positioned so that when a finger-key is depressed, said shaft is only turned the amount required for moving the carrier *t*, and feeding the paper for the character that is perforated by the depression of that key.

The rock-shaft *r'* gives motion to the paper-carrier *t* by the arm *w'*, and this carrier is made with a thin metal plate, t^1, which moves in front of the fence *s*, and to this plate t^1 the paper is clamped by the pawl *u* when said paper and carrier are moved forward, and said pawl is turned and lifted from off the paper and plate when the carrier is moved backward.

To operate this pawl *u*, I employ the spring-arm t^2 and rack *r*, and this arm is secured to the pivot upon which the pawl *u* turns. As the carrier *t* moves backward, the end of the arm enters between two of the teeth of *r*, and said arm being diagonal to said rack *r*, the arm yields to accommodate itself to the movement of the carrier, and in so doing acts as a lever and swings the pawl *u* off of the paper to the position shown by dotted lines in Fig. 1. The pawl *u* is kept in this position by the end of the arm t^2 riding over the teeth of the rack during the entire backward movement of the carrier. Upon the carrier moving forward, the spring-arm swings the pawl *u* and brings it in contact with the paper, and clamps it firmly to the plate t^1, and said paper is fed or carried forward by said plate and pawl, the spring riding t^2 over the ends of the teeth and holding the pawl to the paper. The spring t^3 keeps the strip of paper in its proper position against the fence *s*, and, by its friction, prevents the paper being carried by momentum after the carrier stops.

The operation of this machine, as before mentioned, is similar to that set forth in aforesaid patent, the punches *i* perforating the paper during the time the carrier is moving back-

ward, and this backward movement is a distance equal to the space for the character that is perforated and the intervening distance. The spring 16 returns the parts to their normal position, and I remark that by this construction the adjustment of the paper-feed is very easily made, and the parts are light and not liable to become injured or disarranged.

I claim as my invention—

1. The stops 13 and cam-arms 12 upon the shaft v', in combination with the finger-keys a a', slides c, rollers 15, and paper-feeding mechanism, substantially as and for the purposes set forth.

2. The spring-arm t^2 upon the pawl u, in combination with the rack v and reciprocating mechanism, substantially as set forth.

Signed by me this 24th day of March, A. D. 1873.

THOMAS A. EDISON.

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