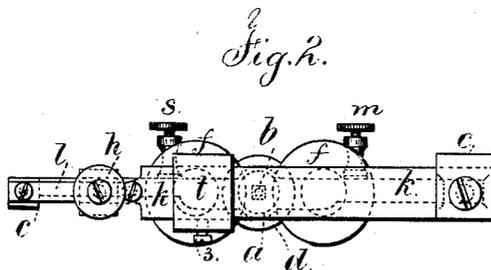
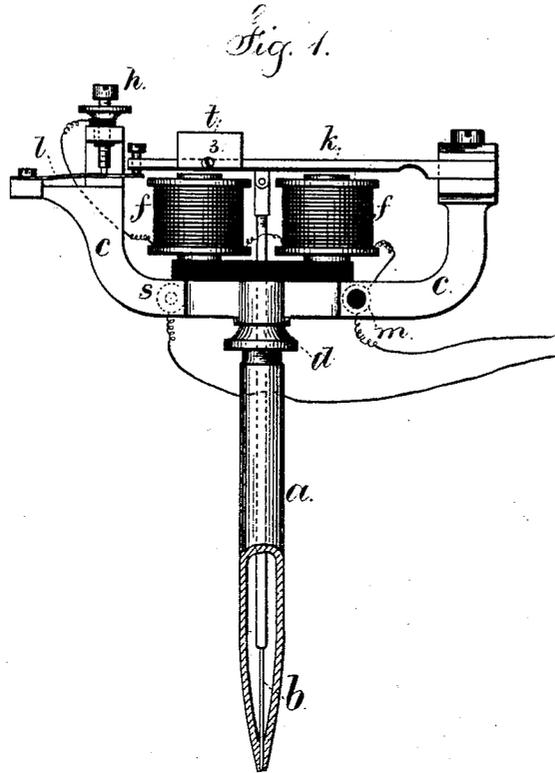


T. A. EDISON.
Stencil-Pen.

No. 196,747.

Patented Nov. 6, 1877.



Witnesses

Chas. H. Smith
Geo. T. Pinckney

Inventor

Thomas A. Edison.

per Lemuel W. Serrell

att'y.

UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF MENLO PARK, NEW JERSEY.

IMPROVEMENT IN STENCIL-PENS.

Specification forming part of Letters Patent No. **196,747**, dated November 6, 1877; application filed April 23, 1877.

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented an Improvement in Autographic Pens, of which the following is a specification:

My present invention relates to a pen actuated by electricity, and adapted to perforating paper that is to be used in printing in the manner set forth in Letters Patent No. 180,857, granted to me.

I reciprocate the perforating-needle with great rapidity by means of a reed or bar vibrating with great rapidity, and acting to open and close a circuit to an electro-magnet, that serves to maintain the vibration of the said reed or bar; and I employ an adjustable weight to vary the speed of vibration, similarly to a pendulum.

In the drawing, Figure 1 is a side view of the pen, reed, and magnet; and Fig. 2 is a plan of the same.

The tubular pen *a* and reciprocating needle *b* are similar to those in the aforesaid patent; and the tube *a* screws into the frame *c*, and it is clamped by the lock-nut *d* after the tube has been adjusted to the proper position relatively to the point of the needle.

Upon the frame *c* is an electro-magnet, *f*, the helix of which is connected at one end to the insulated adjusting-screw *h*, and at the other end to the insulated binding-screw *m*.

The reed *k* is secured at one end to the frame *c*, and the other end is free to act upon the spring *l*, and open and close the circuit between said spring *l* and the adjusting-screw *h*. As the reed vibrates it opens and closes the

circuit through the magnet. When the reed is attracted the circuit is broken, and as it flies back the circuit is again closed through the binder *m*, helix *f*, screw *h*, spring *l*, and frame to the binding-screw *s*, the flexible battery-wires being connected to these binding-screws *h* and *s*, as in aforesaid patent.

By this construction the speed of vibration will depend on the tone of the reed, and that may be altered and the vibration lessened or increased by moving the weight *t* along upon the reed and then clamping it by the screw *3*.

When the weight is moved toward the point of attachment of the reed, the reed will be free to vibrate; but when moved toward the moving end of the reed the speed of motion will be lessened.

The upper end of the needle-rod is connected to this reed; hence motion of the reed is given to the rod and needle to actuate the same in perforating the paper.

The reed might be dispensed with, and a pivoted lever and spring be employed; but the speed and reliability are not as great as with the reed.

I claim as my invention—

The combination, with the electro-magnet and reed or lever vibrated by the same, of the perforating-needle, tubular pen, and circuit-breaker operated by the reed or lever, substantially as set forth.

Signed by me this 18th day of April, A. D. 1877.

THOS. A. EDISON.

Witnesses:

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