J. H. GUNNING & H. B. WEILAND.

Pulsating Stencil-Pen.

No. 216,086. Patented June 3, 1879.

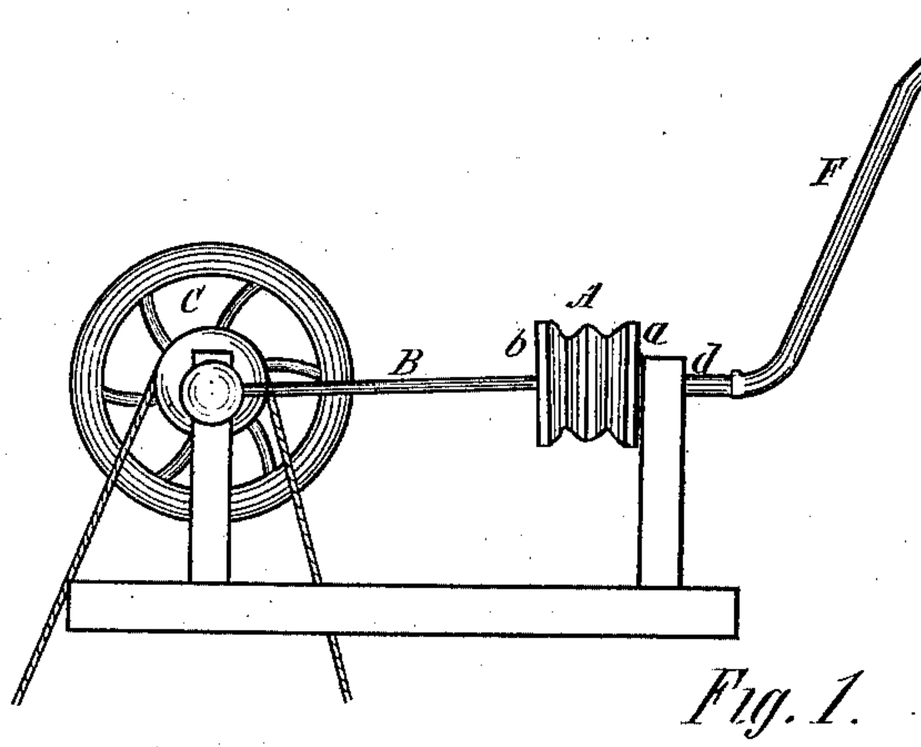
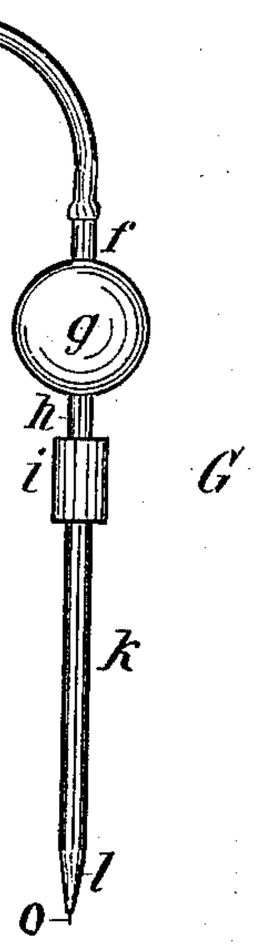


Fig. 1.



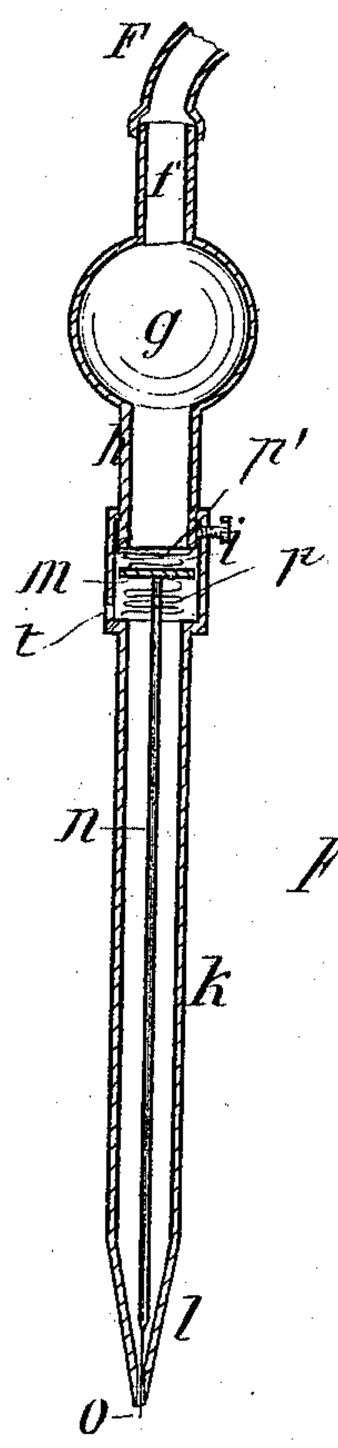


Fig. 2.

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UNITED STATES PATENT OFFICE.

JOSIAH H. GUNNING AND HARRY B. WEILAND, OF TITUSVILLE, PA.

IMPROVEMENT IN PULSATING STENCIL-PENS.

Specification forming part of Letters Patent No. **216,086,** dated June 3, 1879; application filed March 7, 1879.

To all whom it may concern:

Be it known that we, JOSIAH H. GUNNING and HARRY B. WEILAND, of Titusville, Crawford county, Pennsylvania, have invented an Improvement in the Manner of Operating a Pulsating Stencil-Pen or similar Machine, of which the following is a specification.

Our invention relates to that class of machines which communicate power from a fixed machine or wheel by means of pulsations of air through a flexible connection, causing a very rapid synchronous motion in a pulsating bar, to which may be attached a stencil-pen, dental plugger, or similar contrivance. This we do by causing the pulsations to operate on and set in motion a piston, to which is attached the pulsating bar.

The drawings accompanying this specification represent our invention as applied to operate a stencil-pen, the same being applicable to many other mechanical devices where a rapid reciprocating motion is required.

Figure 1 represents the bellows and the machinery necessary to operate the same, the flexible tube, and the pen attached. Fig. 2 is a longitudinal section of the pen, showing the construction and operation of the cylinder, piston, and thrust-bar.

A is a small bellows or elastic air-chamber, the head or end *a* being fixed and the end *b* loose, and operated on by the rod B, connected with an eccentric upon the shaft to which the pulley C is attached. From the end *a* of the bellows projects a small tube, *d*, to which is attached the flexible tube F, leading to and attached to the pen G.

f is an air-tube leading to the air-chamber *g*; *h*, another air-tube to the cylinder *i*; *k*, a tube leading to and terminating in the pencil-point *l*.

In the cylinder *i* is the piston *m*, working loosely, and attached to the needle-bar *n*, the needle-bar ending at the bottom in the needle-point O.

p p′ are recoil-springs placed inside the cylinders, above and below the piston, against which the piston cushions, thus checking the motion without jar or noise, and assisting the rebound. The spring *p* is attached to the lower or bottom end of the air-tube *k*, which can be inserted farther into the cylinder *i* or drawn out, and is confined in place by the set-screw S, thus increasing or diminishing the length of stroke to the piston *m*, the longer stroke having more force.

Openings *t* are made in the bottom of the cylinder *i* to admit the atmospheric pressure.

We claim as our invention—

The described arrangement and combination of the air-tubes *f* and *h*, cylinder *i*, piston *m*, adjustable recoil-springs *p p′*, and reciprocating bar *n*, the piston being actuated by pulsations or air-waves communicated through the flexible tube F, the whole operating substantially as described, and for the purposes herein set forth.

JOSIAH H. GUNNING.
HARRY B. WEILAND.

Witnesses:
J. W. GRAHAM,
A. B. HOWLAND.