(No Model.)

A. P. PHILLIPS.

ENGRAVING AND CHASING MACHINE.

No. 259,912. Patented June 20, 1882.

Fig. 2.

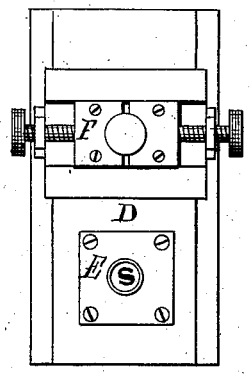


Fig. 1.

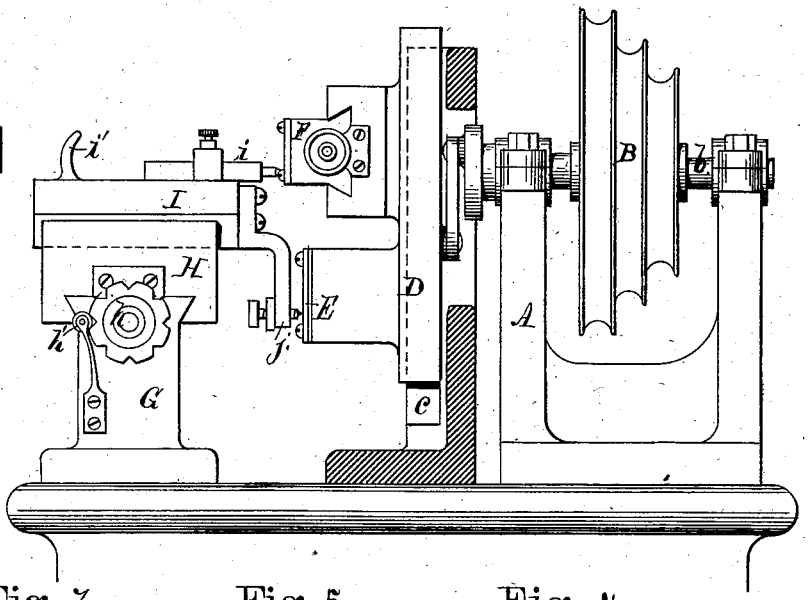


Fig. 3.

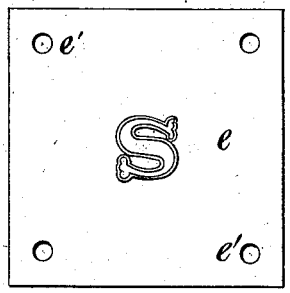


Fig. 5.

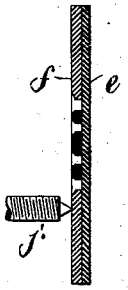


Fig. 4.

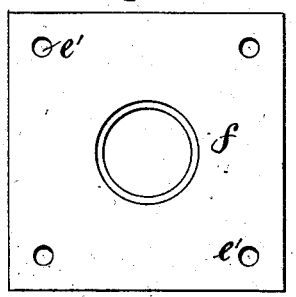


Fig. 6.

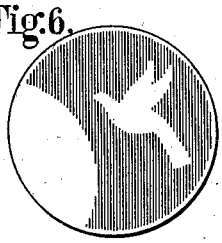


Fig. 7.

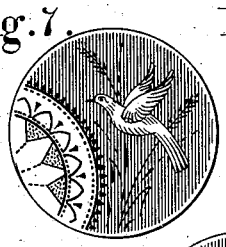


Fig. 8.

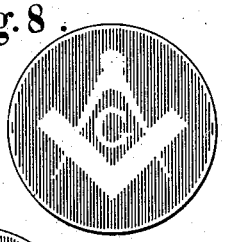


Fig. 9.

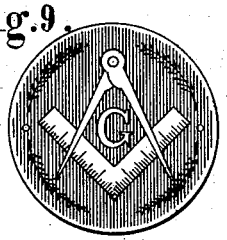
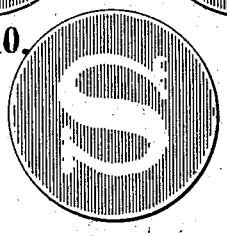


Fig. 10.



WITNESSES:

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Joseph A. Miller Jr

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Ansel P. Phillips.

Joseph A Miller atty

UNITED STATES PATENT OFFICE.

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ENGRAVING AND CHASING MACHINE.

SPECIFICATION forming part of Letters Patent No. 259,912, dated June 20, 1882.

Application filed August 18, 1881. (No model.)

To all whom it may concern:

Be it known that I, ANSEL P. PHILLIPS, of the city and county of Providence, State of Rhode Island, have invented a new and useful Improvement in Engraving and Chasing Machines; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to an improvement in ornamenting jewelry, such as sleeve-buttons, breastpins, scarf-pins, combs, bracelets, or other ornamental articles.

The invention consists in certain novel combinations of devices composing a machine for chasing parallel lines upon metal plates for use in jewelry, and for producing blank designs upon said plates by the proper interruption of said parallel lines, as will be hereinafter particularly described.

In the drawings, Figure 1 is a side view, partly in section, of a machine for ornamenting jewelry, showing the driving-pulleys, a reciprocating holder and pattern, and a sliding guide and graver. Fig. 2 is an end view of the vertically-reciprocating holder and pattern. Fig. 3 is a view of a plate provided with a pattern-letter, and Fig. 4 is a view of a plate having an opening of the form or outline of the surface to be engraved. Fig. 5 is a sectional view, showing the two plates placed together and the tracer or stylus in contact with the same. Fig. 6 is a view of a circular disk on which water-lines are engraved, leaving a portion of the surface in the original smooth condition. Fig. 7 represents the disk shown in Fig. 6 as finished by hand-engraving. Fig. 8 represents another disk having water-lines engraved thereon, and leaving portions of the surface to be finished by hand-engraving. Fig. 9 represents the disk shown in Fig. 8 finished by hand-engraving. Fig. 10 represents a disk engraved from the pattern shown on Fig. 3, enlarged.

Rose-engines and rolling-machines, I am aware, have been used to cut or engrave lines on steel plates, wood-engravings, watches, and other work. I do not claim such use as any part of my invention.

In the manufacture of jewelry, and particularly in cheap jewelry—such as is usually sold in the trade—each design is multiplied many times, and for this reason such jewelry is usually produced with finely-engraved dies by stamping. Stamped work, no matter how well it is done, has not the sharpness and finish of cut or engraved work. To produce the effect of hand-engraved work, to facilitate the engraving by finishing the outlines clearly marked by the engraver, and to reduce the cost of such engraving are the objects of this invention.

Referring now to the drawings, A is a standard, firmly secured to a substantial bed-plate. In this standard a shaft to which the pulleys B are secured is journaled. C is another standard, also secured to the bed-plate, and provided with vertical slides, in which the carriage D reciprocates vertically, being connected with the shaft *b* by means of a crank and connecting-rod, or by any other suitable means by which a regular vertical reciprocation may be produced.

The reciprocation of the carriage D need not be confined to the vertical direction, as it may be made to reciprocate horizontally, or, in fact, in any desired direction, as long as the reciprocation is in fixed ways and uniform.

E is the pattern-holder, being a block on the face of which the pattern may be secured.

F is the work-holder, provided with adjustable clamps by which the work can be accurately secured.

G is a standard, also secured to the bed-plate, and provided with ways, in which the sliding rest H is secured so as to slide laterally. The rest H has a female screw secured to it or forming part of it, in which a screw secured to the index-wheel *h* turns, so that by turning the index-wheel *h* the rest H will be moved more or less, according to the number of notches in the index-wheel *h* that pass by the guide *h'* when the screw is turned—that is to say, for the ordinary water-lines, such as are shown in the drawings, the index-wheel is turned one notch; but good effects may be produced by turning the index-wheel first one notch, then two, and again one, and so on successively, or by turning first one notch, then two, again two, then one, and repeat. By using a fine screw of little pitch a fine effect of shading can be produced by moving one additional notch after each line, and by placing

specially graduated index-wheels on the end of the screw various effects may be produced.

I is a slide on which the graver *i* and the stylus or tracer *j* are secured. It is shown provided with the thumb-piece *i'*, so that it can be held against the work by hand; but it may be held by means of a spring or springs, or a weight may be used to hold the graver to its work and the stylus to the pattern, as will be readily understood by any one versed in the art.

f in Fig. 4 is the face or outline plate, having a beveled edge, so as to raise the stylus and graver when the edge is reached. The plate is provided with four holes, *e' e'*, by which it is secured to the holder.

e in Fig. 3 is the pattern-plate, provided also with the holes *e' e'*, corresponding accurately with the holes in plate *f*. (The letter S is the pattern in this instance.) The patterns for large surfaces may consist of a number of forms or pieces secured to the plate *e* and surrounded by the marginal plate *f*, so that a great variety of effects may be produced with a few patterns, and any flat surface may be richly ornamented with little cost.

The operation of the machine is simply as follows: A die or pattern having been properly secured, and also a plate, the graver *i* is adjusted to cut the desired depth of line. The machine is now started and line after line produced, leaving the outline of the pattern blank on the plate, as the stylus raises the graver off the plate when it comes in contact with the pattern. The lined plate, as shown in Figs. 6, 8, and 10, is now ready for the engraver, and as the outlines are clearly defined the engraver with a few cuts finishes the plate and produces a highly-artistic engraved jewel with very little labor.

For large work the index-wheel may have ratchet-teeth cut on its periphery, and a pawl-clutch may be arranged to turn the same automatically at the end of each reciprocation.

The graver may be secured in a hinged holder, so as to rise off the work on the return reciprocation; or a cam may be arranged to hold both the graver and stylus away from the work on the return reciprocation, all such devices being now in common use on planing-machines.

I am aware that a machine has been invented to chase radial lines and leave blank central designs upon watch and locket cases and the like; but such invention is capable of but limited application in the manufacture of jewelry, and I lay no claim to it or any part of it.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the reciprocating carriage D, provided with the work and pattern holders, of the slide I, provided with the graver and stylus holders, and having a movement toward and from the carriage, and capable of adjustment laterally with respect to said movement, substantially as described.

2. The combination, with the reciprocating carriage D, provided with the work and pattern holders, of the slide-rest H, having a movement in a plane parallel with the plane of movement of the carriage, and the slide I, mounted on said rest and having a movement toward and from the carriage, substantially as described.

3. The combination, with the reciprocating carriage D, provided with the work and pattern holders, of the slide-rest H, provided with an adjusting-screw and the index-plate *h*, and the slide I, provided with the graver *i* and the stylus *j*, constructed to operate as described.

4. The combination, with the pattern-plate *e*, of the marginal plate *f*, constructed to form, when secured together, the pattern by which the stylus guides the graver, as and for the purpose set forth.

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J. A. MILLER, Jr.