

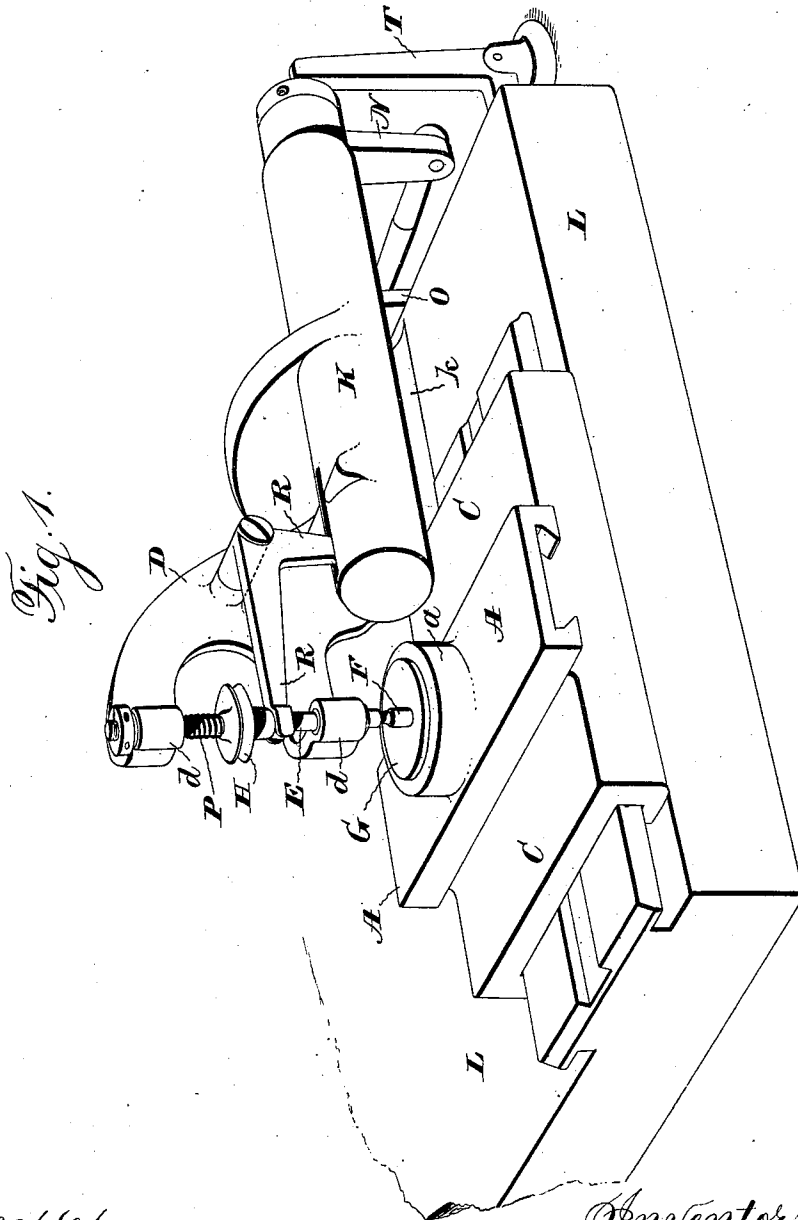
(No Model.)

4 Sheets—Sheet 1.

G. E. HUNTER.
METAL ORNAMENTING MACHINE.

No. 563,595.

Patented July 7, 1896.



Witnesses:
Jas. C. Hutchinson.
Henry C. Hazard.

Inventor.
Geo. E. Hunter, by
Pindle & Russell, his Attys

(No Model.)

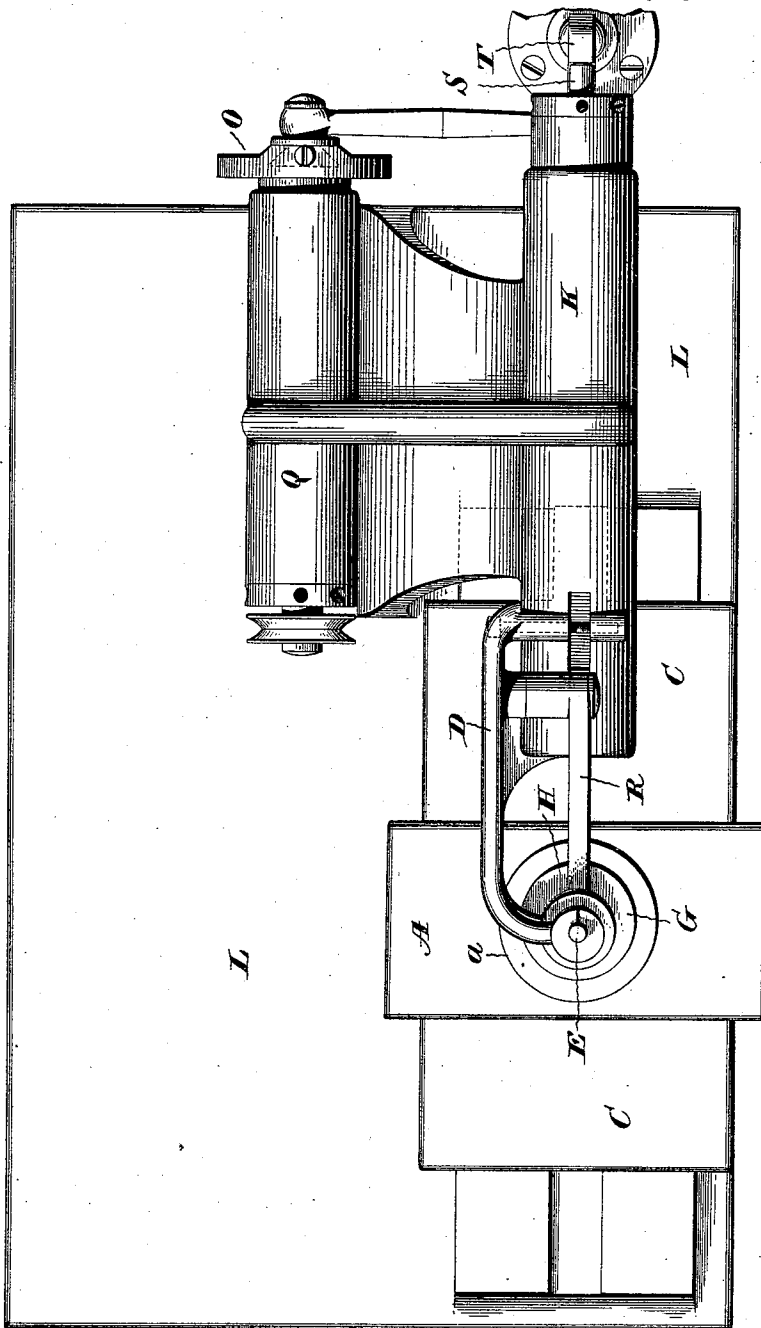
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Fig. 2.



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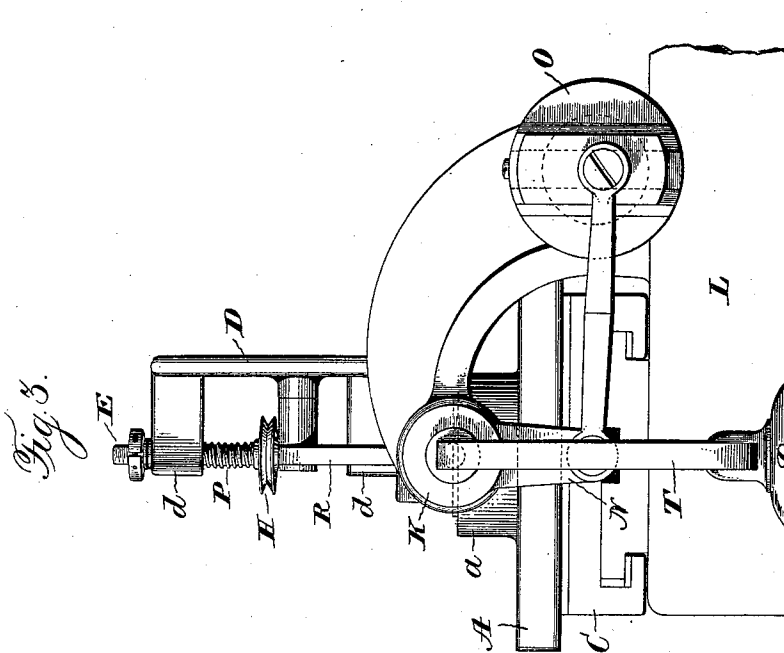
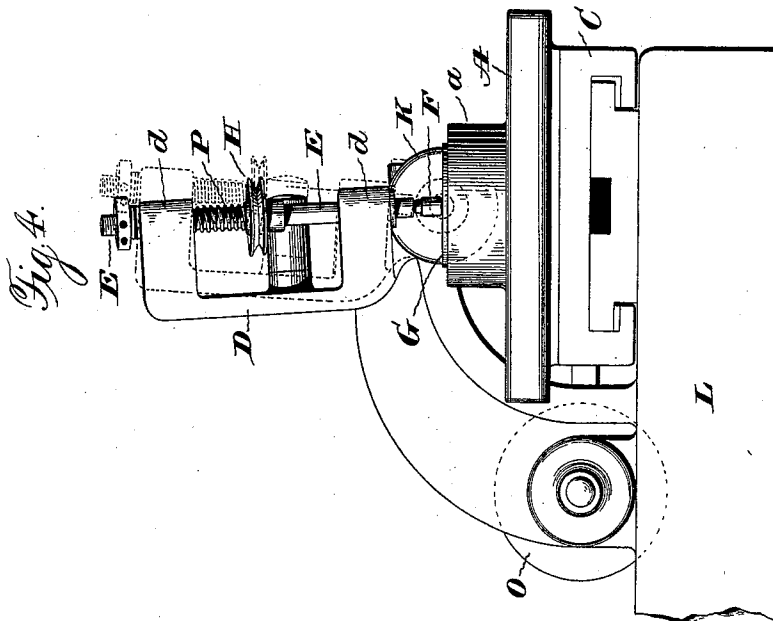
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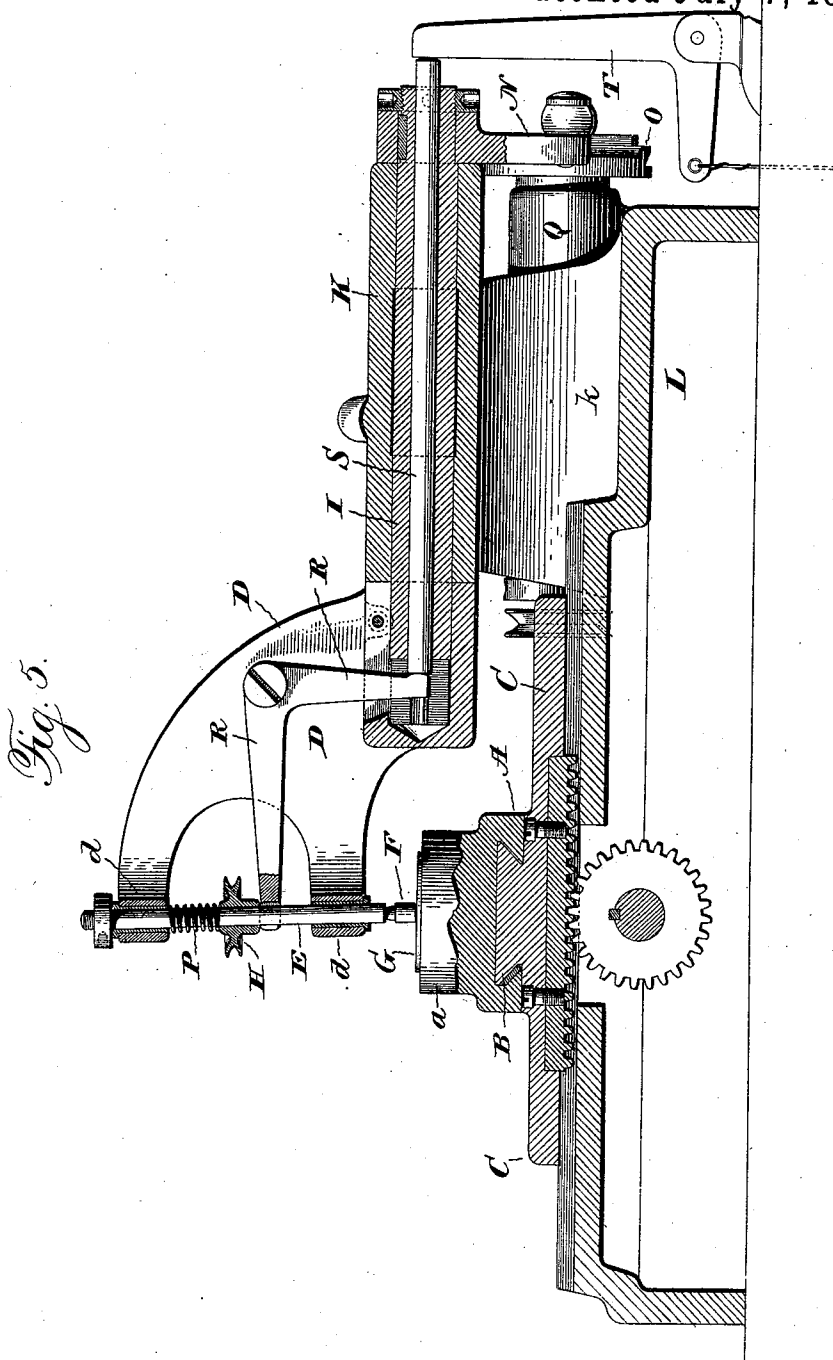
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UNITED STATES PATENT OFFICE.

GEORGE E. HUNTER, OF ELGIN, ILLINOIS, ASSIGNOR TO THE ELGIN NATIONAL WATCH COMPANY, OF CHICAGO, ILLINOIS.

METAL-ORNAMENTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 563,595, dated July 7, 1896.

Application filed May 18, 1895. Serial No. 549,731. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. HUNTER, of Elgin, in the county of Kane, and in the State of Illinois, have invented certain new and useful Improvements in Methods of and Mechanism for Damaskeening; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a mechanism embodying my invention. Fig. 2 is a plan view of the same from its upper side. Fig. 3 is a side elevation of said mechanism. Fig. 4 is a front elevation of the same, the full and dotted lines showing two positions of the lap-supporting device; and Fig. 5 is a vertical section of said mechanism upon a line with its longitudinal axis.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to enable the ornamentation of watch-movement plates by what is known as "damaskeening" to be produced by automatically-operating mechanism; and to such end my said invention consists in the mechanism employed, substantially as and for the purpose hereinafter specified.

In the carrying of my invention into practice, I employ a plate-holder *a*, which forms part of a carriage A, that is supported upon and adapted to move horizontally over a way B, which way is, in turn, supported by and capable of being moved horizontally over a second way C, that is arranged at a right angle to said way B, such parts, together with feed-screws, or other usual means for effecting longitudinal motion, constituting a compound slide-rest.

Journalled in two bearings *d* and *d*, carried by an arm D, is a vertical spindle E, which at its lower end is provided with a grinding-lap F, of usual construction for operating upon a watch-plate G, secured to the upper side of the holder *a*. Upon said spindle, at a point between the two bearings *d* and *d*, is a grooved wheel or pulley H, which is adapted to be driven by means of a belt or cord to rotate the spindle and with it the lap.

The arm D is fixed upon and moves with a horizontal rock-shaft I, that is journalled in a

housing K, which is supported by a curved arm *k*, attached to and rising from the base L of the machine, and to rock said shaft the same has a crank-arm M, that is connected by a pitman N with a crank-wheel or eccentric O upon a shaft which is journaled in a bearing Q, attached to the base L.

By the mechanism just described, the spindle may be rapidly oscillated as it revolves to change the angle of the working face of the lap to the surface of the movement-plate.

A coiled spring P, interposed between the upper side of the pulley H and the upper bearing *d*, operates to move and hold the lap in contact with the work, while to lift the lap from the work there is employed a bell-crank lever R, that is pivoted to the arm D, and has one arm engaging the under side of said pulley, and its other arm engaging the inner end of a longitudinally-movable rod S, passing axially through the rock-shaft I, and having its outer end engaged by a lever T, which is adapted to be moved by the operator to slide the rod S.

The machine constructed as described is adapted to damaskeen by the production of straight flutes extending parallel with each other across the movement-plate, and the operation thereof is as follows: The compound slide-rest being adjusted to place the work in position to form the outermost flute, the lap-spindle is rapidly revolved, and the carriage A moved to feed the plate along for the action of the lap. As the latter is revolved it is rapidly vibrated in a direction at right angles to the line of the flute from one side of the same to the other, and produces the shaded curved effect at the sides thereof. The vibration of the grinding-tool from side to side of the flute, as the plate is fed along, by the movement of the carriage A, enables the flute to be completed by a single passage of such tool over the plate. One flute being thus made, the lap is raised by operating the lever T, and the holder *a* is adjusted by moving the way B to place the movement-plate in position for the making of another flute, and then said lap is dropped upon the plate.

It is of course to be understood that as the mechanism shown and described comprises but one means for carrying my invention into

practice the scope of my invention is not limited to such means.

By my invention the ornamentation of movement-plates by damaskeening can be most rapidly done, and by mechanism whose operation is automatic.

Having thus described my invention, what I claim is—

1. In a surface-ornamenting machine, the combination of a work-holder, an ornamenting-tool, means for moving one of said parts to enable the tool to operate on new surfaces, and means to change the angular position of the tool relative to the work the direction of movement to effect such change intersecting the line of travel to present new surfaces to the tool, and being effected during such travel, and while the tool is at work, substantially as and for the purpose specified.

2. In a surface-ornamenting machine, the combination of an ornamenting-tool, means to feed the work while the tool is operating, and means to vibrate said tool in a direction to intersect the line of feed, and during such feed, to cause its operating part to act on the work on opposite sides of a central line, substantially as and for the purpose shown.

3. In a surface-ornamenting machine, the

combination of a rotatable, ornamenting-tool, a swinging frame journaling the same, means to feed the work to the tool, and means for vibrating said frame as the tool rotates, and in a direction that intersects the direction of feed, to cause the operating part of the tool to act on the work on opposite sides of a central line, substantially as and for the purpose set forth.

4. In a surface-ornamenting machine, the combination of a rotatable ornamenting-tool, a swinging frame journaling the same a work-holder, for feeding the work to the tool, and an eccentric connected with the swinging frame to move the same in a direction to carry the tool at a right angle to the line of feed of the work, and during such feed, to cause the operating part of the tool to act on the work on opposite sides of a central line, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand this 1st day of February, 1895.

GEORGE E. HUNTER.

Witnesses:

GEO. S. PRINDLE,
CARLOS H. SMITH.