(No Model.)

I. R. BEAM.

ENGRAVING MACHINE.

No. 295,853. Patented Mar. 25, 1884.

Fig. 1.

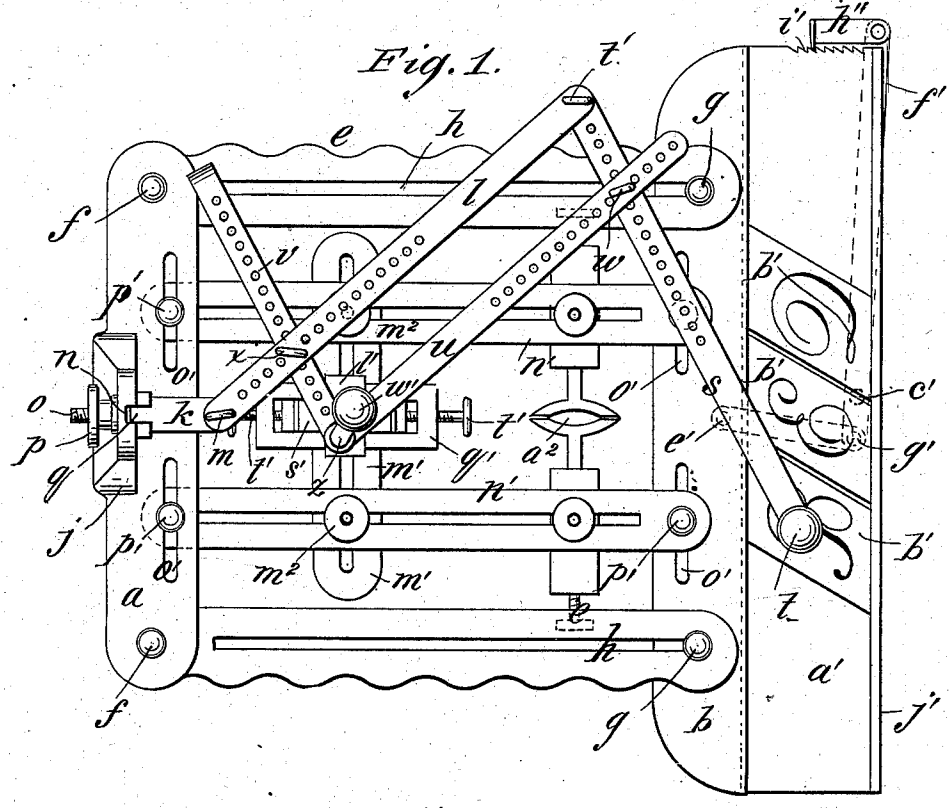
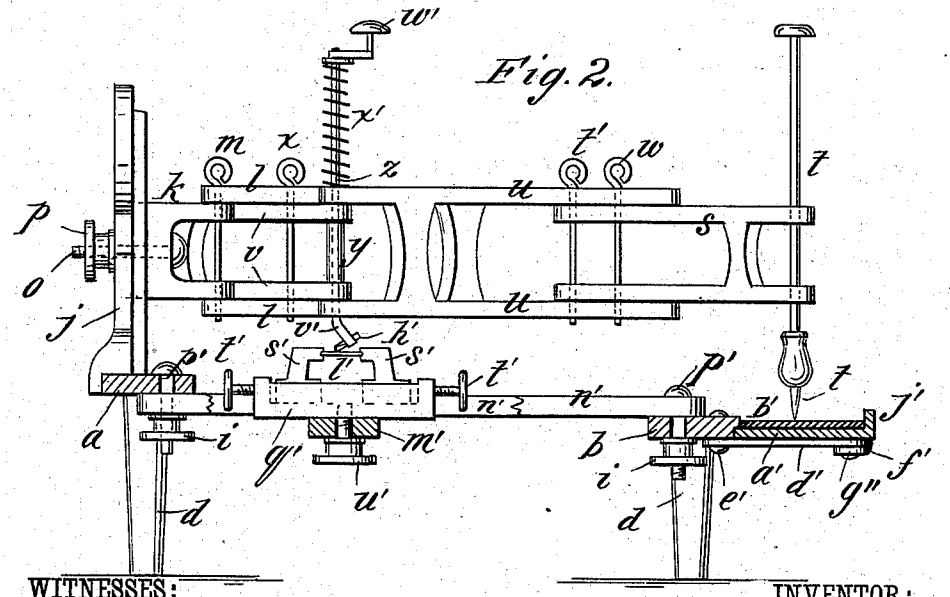


Fig. 2.



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UNITED STATES PATENT OFFICE.

IRA R. BEAM, OF DRYDEN, NEW YORK, ASSIGNOR OF ONE-THIRD TO BROWN M. BARNES, OF SAME PLACE.

ENGRAVING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 295,853, dated March 25, 1884.

Application filed November 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, IRA R. BEAM, of Dryden, in the county of Tompkins and State of New York, have invented a new and Improved Engraving-Machine, of which the following is a full, clear, and exact description.

The object of my invention is to provide a simple and efficient machine for engraving jewelry, watches, plate, and other goods of the jeweler's trade, the said machine being provided with holding devices having a wide range of adjustment, to enable the different articles of various forms and sizes to be readily applied to the machine for being engraved; also with an improved construction and arrangement of the engraving-tool, and the apparatus for working it, and also with an improvement in the apparatus for holding the copy, from which the movements of the engraving-tool are to be directed by a style, all as hereinafter fully described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of my improved engraving-machine, and Fig. 2 is partly a side elevation and partly a sectional elevation.

The bed-frame of the machine consists of the two plates *a* and *b*, set on legs *d* or other approved supports, and connected by the cross-plates *e*, which are bolted at one end to the under side of plate *a* at the ends of said plate by bolts *f*, and at the other ends are bolted to the top of plate *b* by bolts *g*, these bolts passing through slots *h* of said cross-plates, which slots are employed for enabling the plates *a b* to be set nearer together or farther apart, as may be required; and also for enabling vise or clamp holding bars of different forms to be bolted to said cross-bars for holding different sizes and forms of work to the engraving-tool *h'*. The bolts *f* and *g* are secured by thumb-nuts, to enable the bolts to be readily fastened and unfastened. At the middle and outer edge of plate *a* a slotted upright support, *j*, is mounted for the support of the head *k*, to which the joint *l* of the parallel frame for working the engraving-tool is hinged by the pin *m*, said head being vertically adjustable along the vertical groove by the shifting-bolt *o*, attached to the head and extending through the slot of the support *j*, and being secured by a thumb-nut, *p*. The head *k* has a tongue, *q*, fitting in the groove of the support for being held firmly. To the joint *l* of said tool-carrying frame, the style-joint *s*, carrying the tracing-style *t*, is pivoted by the pin *t'*, and the counterparts *u* and *v* of said parallel frame are pivoted to these joints *l s*, respectively, by the pins *w* and *x*, said joints *u* and *v* being pivoted together by a tubular pivot-stud, *y*, through which the staff *z* of the engraving-tool *h'* is fitted, and all the joints of the said frame are perforated with numerous holes to enlarge or control the dimensions of the frame by shifting the pins *w* and *x*, and adjusting the joints according as the scale of the engraving to be made is to be increased or diminished. Under the point of the tracing-style the table *a'*, for holding the design-plates *b'*, to be engraved by the tool *h'*, is located, said table being pivoted at *c'* to a lever, *f'*, jointed at *g'* to an arm, *d'*, jointed at *e'* to the under side of plate *b* at its middle or thereabout. The lever *f'* extends to one end of table *a'*, where it is provided with a holding pawl, *h''*, which engages with notches *i'* in the end of the table to hold the lever when swung toward plate *b*, to bind the plates *b'*, having the design to be copied between flange *j'* of the table and the edge of plate *b*, for holding them while being traced by the style *t* to guide the engraving-tool for reproducing the design on the article to be engraved. The work *l'* is to be held under the engraving-tool *h'* by any approved form of vise, which is to be attached to one or more slotted bars, *m'*, supported by screws *m''* on other slotted bars, *n'*, which are supported by the plates *a* and *b*, which have slot-holes *o'* for the fastening-bolts *p'*, by which and nuts *i'* said bars *n'* are secured, to enable them to be adjusted to suit the form and size of the vise or clamp, of which different forms and sizes will be used, according to the form and size of the article to be engraved. The vise represented in Figs. 1 and 2 consists of a rectangular frame, *q'*, containing sliding jaws *s'* and adjusting-screws *t'*, said frame being clamped onto the slotted bar *m'* by the thumb-screw *u'*; but various other forms of clamps or

vises may be used, for which the bars m' and n' will be shifted, as required. The engraving-tool h' is set obliquely in the end of the bent arm v' of the staff z, so that the point of the tool rests in the axis of the staff, to enable the staff to be turned for setting the point of the tool in the direction in which it is to be moved, as the direction changes in the form of the design being engraved without throwing the cutting-point out of said line, thus enabling an engraving-tool to be used in that form of machine, so as to cut in its natural way; and the staff is arranged in the tube y, and provided with a crank, w', on its upper end for turning it as the work progresses and the direction changes. The staff is also made to slide up and down, so that the tool may be made to cut uniform lines on oval work by pressing it down with the finger, and allowing it to be raised by the spring x', according to the form of the surface being engraved. The cutter can, by the same contrivance, be made to cut fine shade-lines or heavy lines, as preferred.

Different cutters and forms of cutter-staffs will be employed, according to the nature of the work, some of the staffs being suitably bent, to engrave inside of rings and other articles. At a^2, in Fig. 1, is shown a form of vise adapted for holding circular or elliptical work.

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

1. The improved engraving-machine frame, consisting of plates a b, having leg or other supports, d, and connected by slotted cross-bars e, the plate a, having the slotted upright support j for the tool-frame head k, and the plate b, having the copy-table a', connected to it, all substantially as described.

2. In an engraving-machine, the combination, with the head k, adjustably connected to its support, of the frames l, pivoted to the head k, the frame s, pivoted to frame l, and the frames w v, pivoted together and to the frames s l, respectively, the tool-staff z in the joints of the frames u v, and the style t in the end of the frame s, substantially as herein shown and described.

3. The adjustable vise q' s' t' and slotted adjustable supporting-bars m' and n', in combination with the bed-frame plates a b, and the parallel tool-frame and engraving-tool, substantially as described.

4. The table a', having flange j', and being pivoted on the lever f', connected by link d' with the bed-plate b, and having the catch-pawl h'', said table also being arranged to clamp the copy-plates b' against the edge of bed-plate b, and having notches i' for the holding-pawl, substantially as described.

5. In an engraving-machine, the combination, with the slotted plates a b, of the slotted bars n', adjustably attached to said plates a b, and the slotted plate m', for supporting adjustably a work-holding vise, substantially as described.

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Witnesses:
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