J. C. Spencer.

Engraving Mach.

No. 99,794. Patented Feb. 15, 1870.

Fig. 1.

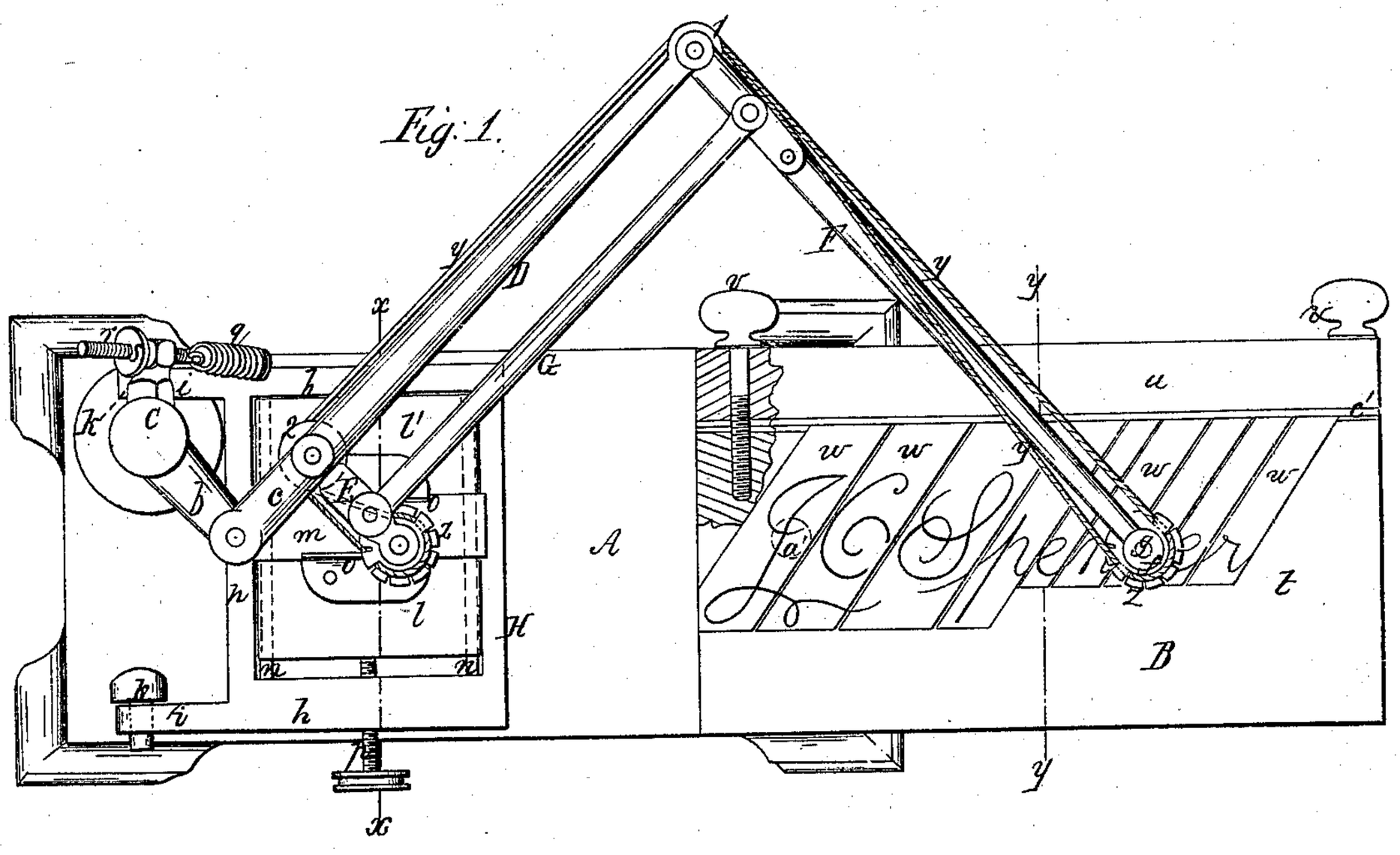


Fig. 2.

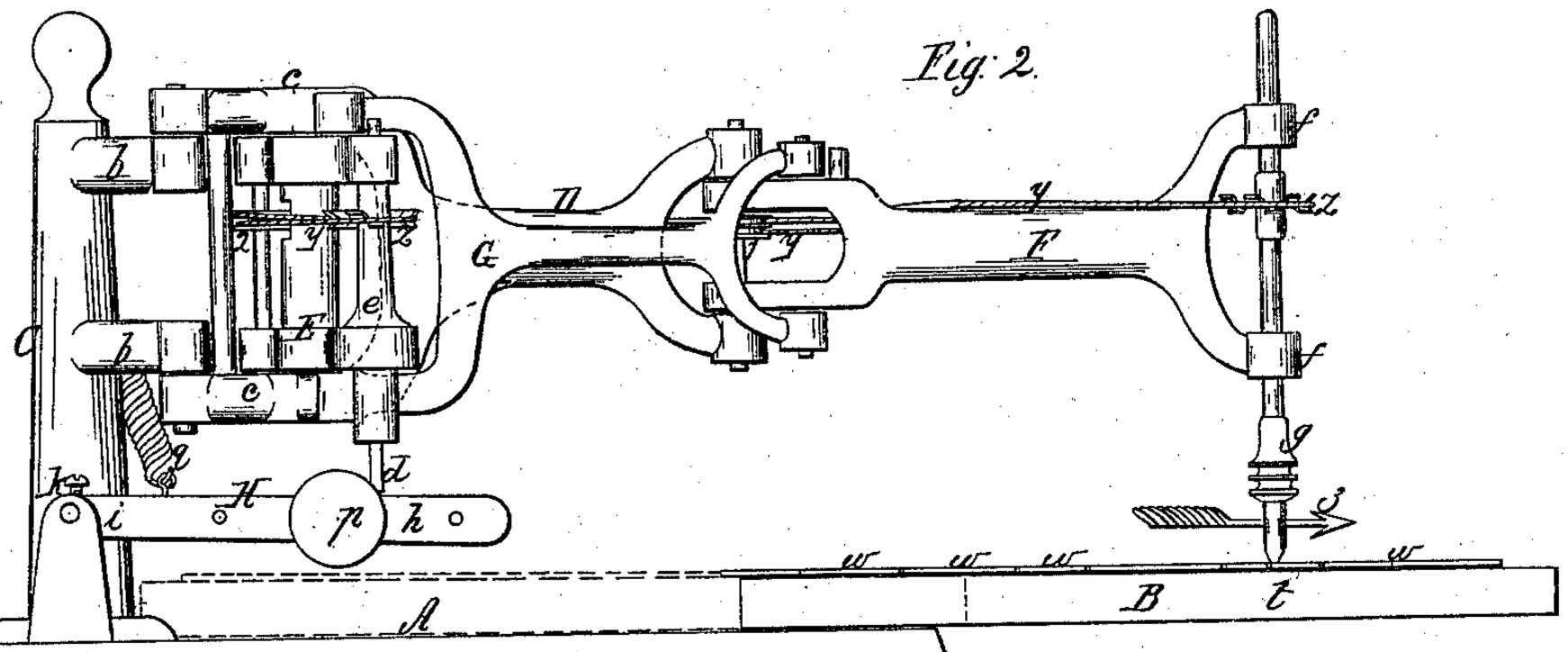


Fig. 3.

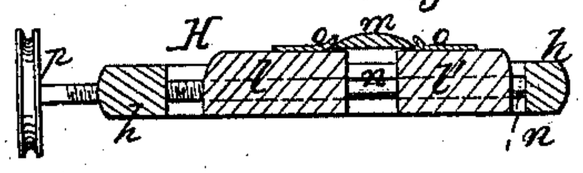
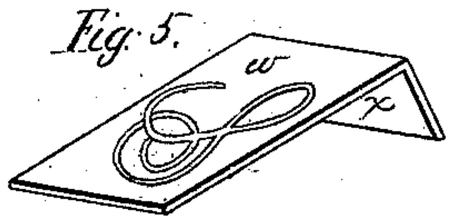


Fig. 4.

Fig. 5.



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UNITED STATES PATENT OFFICE.

J. CIVILIAN SPENCER, OF PHELPS, NEW YORK.

IMPROVEMENT IN ENGRAVING-MACHINES.

Specification forming part of Letters Patent No. **99,794**, dated February 15, 1870

To all whom it may concern:

Be it known that I, J. C. SPENCER, of Phelps, in the county of Ontario and State of New York, have invented certain new and useful Improvements in Engraving-Machines, of which the following is a specification.

The object of my invention is to produce a machine for engraving names and other figures on metallic name-plates and ware, by which it may be done in a more rapid and perfect manner than by the ordinary means of hand-labor.

The invention consists in the combination of type or forms with a graver, the latter being connected, by means of jointed arms or levers, with the tracing point or spindle in such a manner that by moving the said tracing-point over the lines of the type a corresponding motion will be imparted to the graver by which the name or other figure is cut upon the article.

It further consists in a spring-bed provided with clamp-blocks for securing the article to be engraved, and bearing it up against the graver, and also in the type and in the construction of the table for securing the forms in place.

In the accompanying drawings, Figure 1 is a plan view of my improved machine; Fig. 2, a side elevation of the same; Fig. 3, a cross-section of the spring-bed in the plane of line *x x*, Fig. 1; Fig. 4, a similar section of the form-table in the plane of line *y y*, Fig. 1; Fig. 5, a perspective view of one of the type.

A indicates the base of the machine, and B the type or form table, which is pivoted at one end (shown in dotted lines at *a'*) to the end of the base, so that it can be either turned in and rest on top of the base when not in use, as shown in red lines, Fig. 2, or extended as in black lines, when in operation. At the opposite end of the base A from the type-table is provided a perpendicular standard, C, with horizontal bearings *b b* projecting therefrom. To these bearings is pivoted a swinging arm or lever, D, the end of which is formed with forked or branched bearings *c c*, to conform to the bearings *b b* of the standard. At the outer swinging end of the said arm D is jointed an extension-arm, F, which is provided at its extremity with a tracing point or spindle, *g*, that rests loosely in the bearings *f f*. The tracing-point *g* is adapted to the lines of the type over which it is made to move, as will be hereinafter decribed.

Between the forked bearings *c c* is hung a swinging frame, E, that has a revolving shaft or spindle, *e*, in the end of which the graver or cutter *d* is secured.

To the swinging frame E is jointed the end of a lever-bar, G, that extends parallel with the arm D, and is jointed at its opposite end to the extension-arm F. Connected in this manner, it will be perceived that at each movement of the tracing point or spindle *g* a corresponding motion will be imparted to the graver *d* in the swinging frame, though the distance of the motion of the latter will be limited in proportion to the extent of its leverage.

Beneath the graver *d* is provided a spring-bed, H, on which the name-plate or other article to be engraved is secured. The spring-bed consists of a square frame, *h*, having arms *i i* in one side, that are pivoted to bearings *k k*. Adjustable clamp-blocks *l l'*, resting on the slide rods or bearings *n n*, are provided with jaws or bearings *o o*, between which the plate *m* to be engraved is secured. The block *l* is adjusted to secure or loosen the plate *m* by means of an adjusting-screw, *p*, which rests in a screw-bearing in the frame *h*. A tension-spring, *q*, is employed, that connects the bed H with the screw *r*, the said screw being provided with an adjusting-nut, *s*, by which the tension of the spring-bed against the graver is gaged to regulate the depth or size of the line to be cut, and to disengage the spring-bed H from the graver when it is not in operation.

The type or form table B consists, simply, of a leaf or platform, *t*, provided with an adjustable clamp-bar, *u*. The said clamp-bar is moved out and in by means of the adjusting-screws *v v*, to secure or loosen the type or forms *w w* that are clamped therein. The type or forms *w* are preferably made of metal and of the form shown in Fig. 5, having the lip or flange *x*, that rests in the clamp, to secure the forms in place. The letters or characters marked thereon are of sunken or grooved lines, so as to receive the point of the tracer *g*, and guide its movement as it passes over the lines. I also prefer to insert a strip of rubber, *c'*, or other elastic substance in the clamp, to make the pressure against the type uniform and hold them securely.

In operation it is necessary that the cutting-edge of the graver should be kept in the proper position for cutting, and gradually turned to correspond with the curve or direction of the line of motion. For this purpose I connect the tracer or spindle *g* with the shaft *e*, in which the graver rests, by means of an endless cord or band, *y*, which passes around pulleys *z z* on the said shafts *e* and *g*, and also around friction-rollers 1 2. The pulleys *z z* are preferably made of sheet metal, with alternate sections of their edges bent over in opposite directions, to form a groove in which the endless cord *y* cannot slip or run off. The tracer or spindle *g* is also provided with a pointer, 3, which at all times points in the direction of motion, and corresponds in position with that of the cutting-edge of the graver.

The operation of the machine is as follows: The type are set and are securely clamped to the form-table B. The name-plate *m*, or other article to be engraved, is secured to the spring-bed H, which is drawn up against the graver *d* by turning the adjusting-nut *s*. The tracer *g* is then moved over the grooved lines of the type, which, by means of its connections with the graver, imparts to the latter a similar motion to that of itself, and thus the letters or characters corresponding with those of the type, are cut on the article that is being engraved, though of smaller size. In passing the tracer *g* over the lines of the type, care should be taken at all times to turn the pointer 3 in the direction of the line of motion, in order that by means of its connection with the graver-shaft through the endless cord or band *y*, the cutting-edge of the graver may be turned to the proper position for cutting the letters in whatever direction it may move.

What I claim as my invention is—

1. The combination of the type or forms *w* and tracer *g* with the graver *d*, in connection with the arms or levers D F G and swinging frame E, substantially as herein set forth.

2. In combination with the above, the adjustable spring-bed H, provided with the clamp-blocks *l l* and adjusting-screw *p*, or equivalent, substantially as described.

3. The form-table B, provided with the adjustable clamp-bar *u* and screws *v·v* or equivalent, in combination with the type or forms *w*, tracer *g*, graver *d*, and endless cord or band *y*, substantially as herein set forth.

In testimony whereof I hereunto sign my name in the presence of two subscribing witnesses.

J. CIVILIAN SPENCER.

Witnesses:

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