

W. L. Ormsby  
Engraving Machine.

N<sup>o</sup> 47745.

*Patented May 16, 1865.*

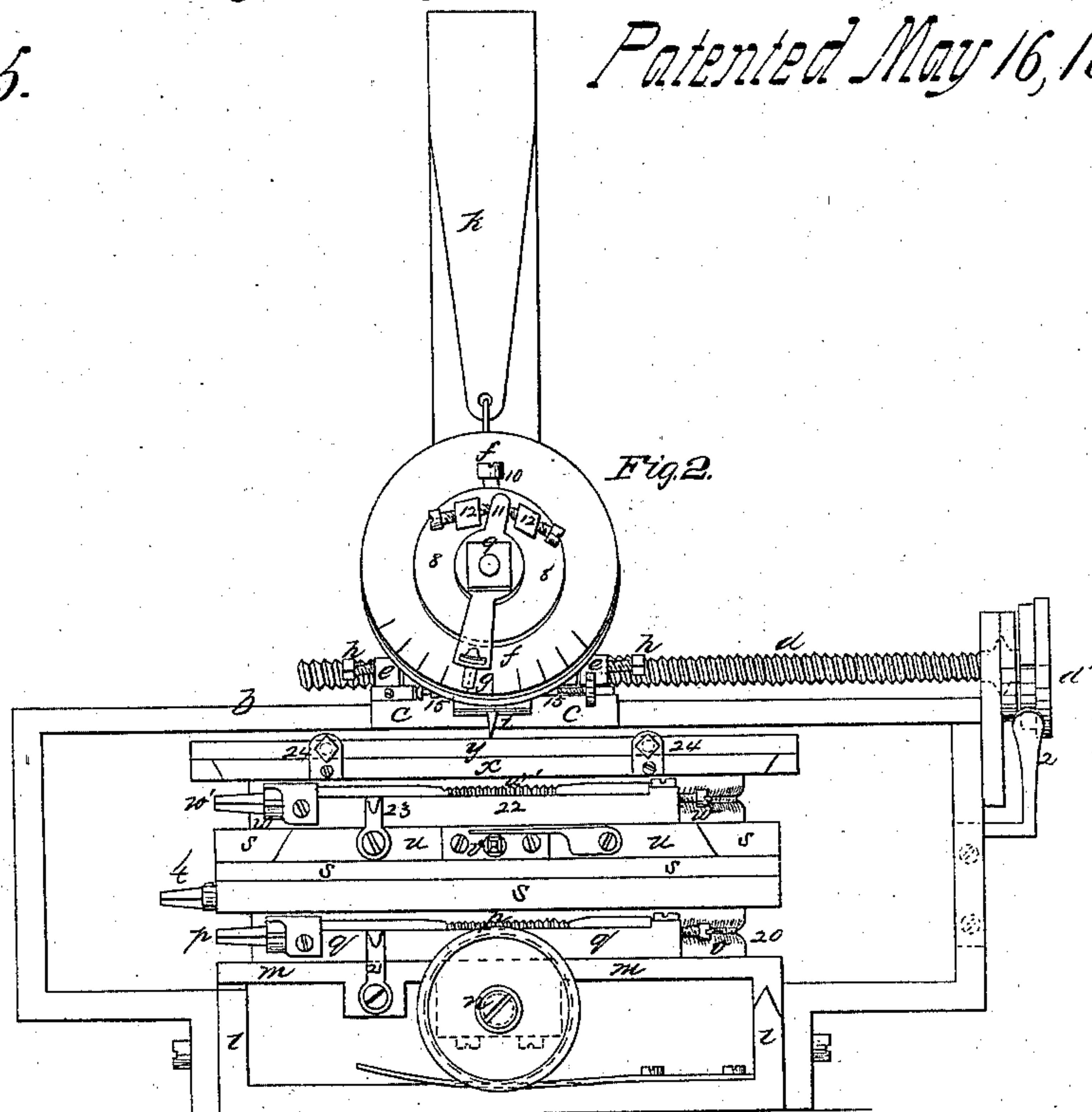
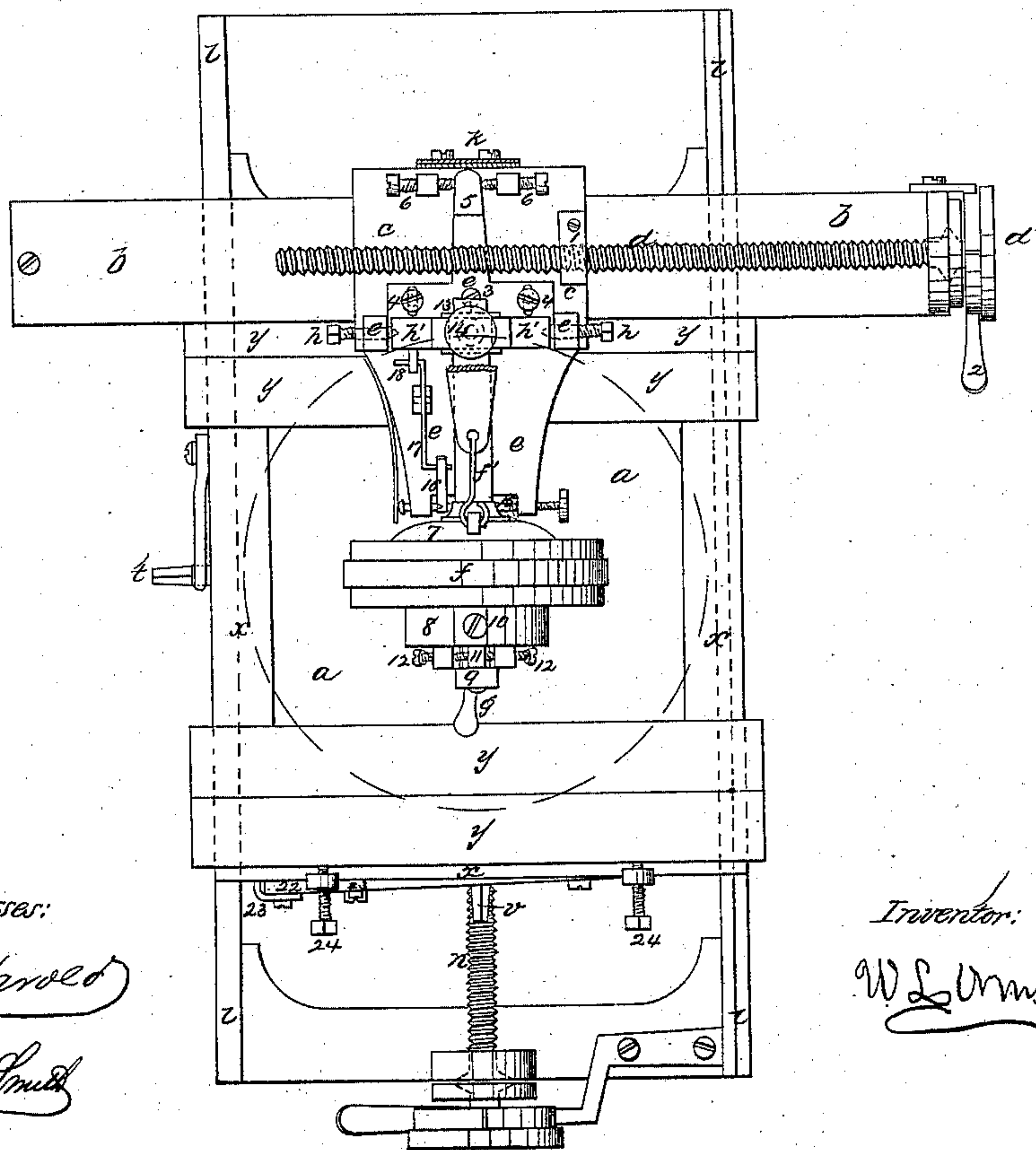


Fig. 1.



Witnesses:  
Chas Geo Harold  
 Chas. H. Smith

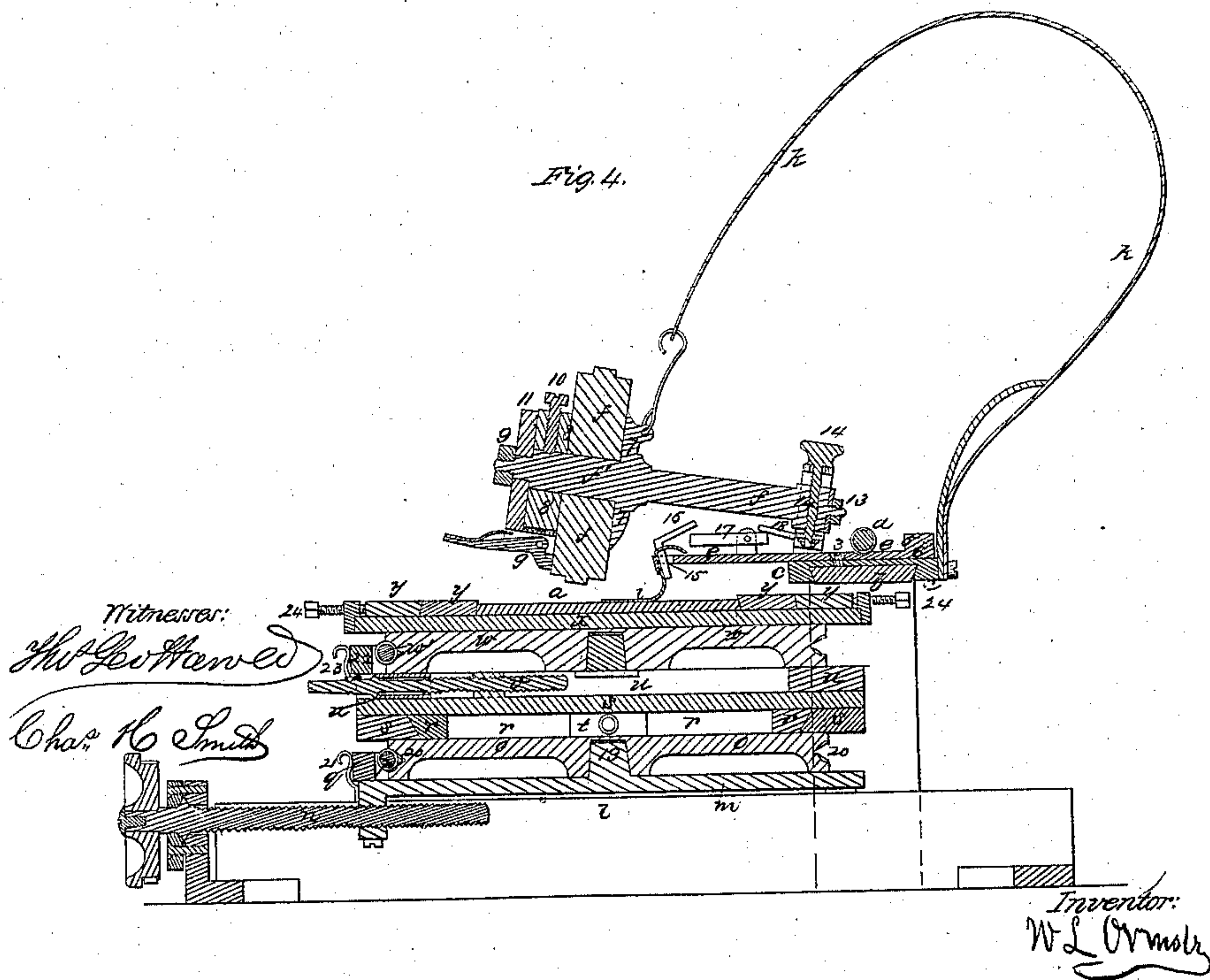
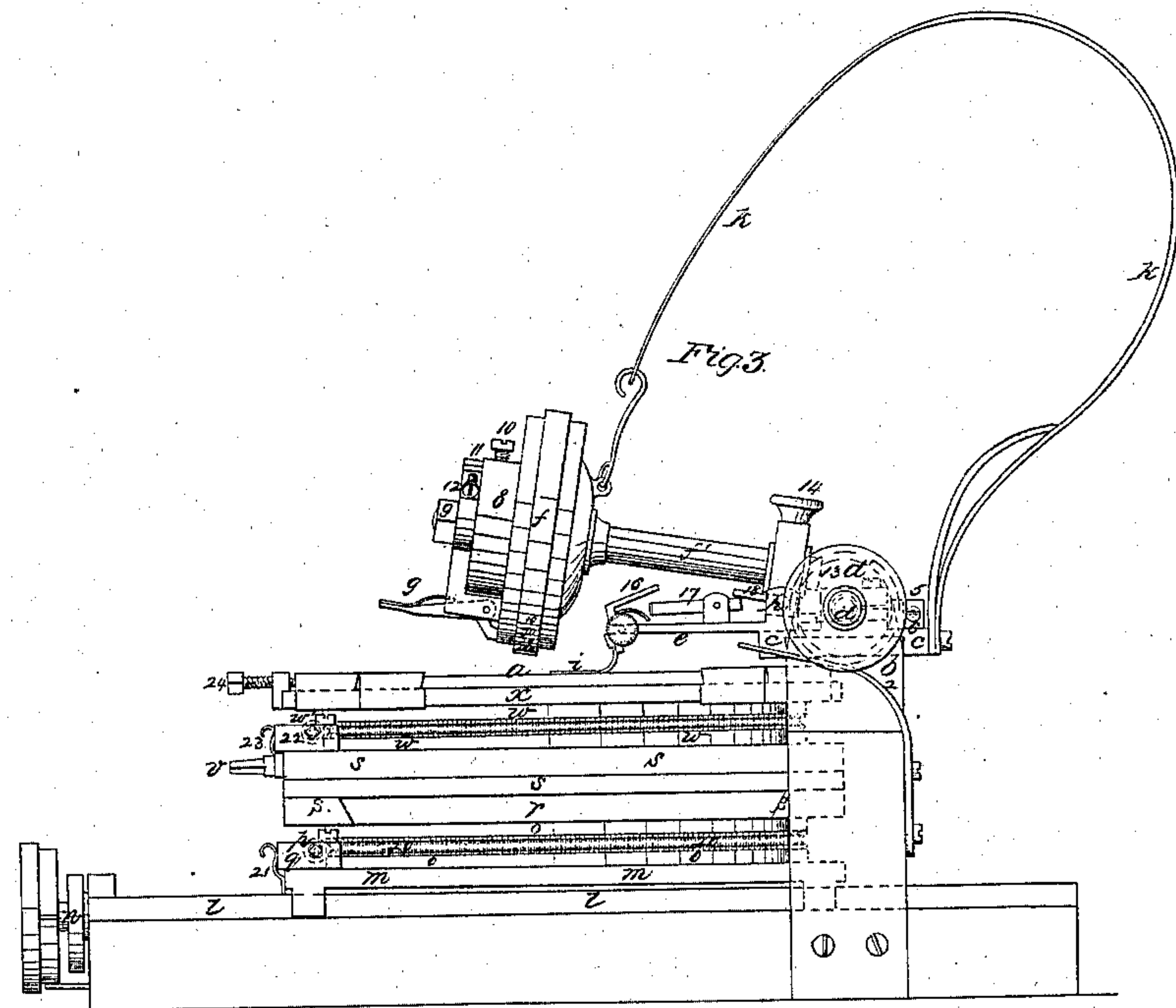
Inventor:  
W L Ormsby

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Engraving Machine.

N<sup>o</sup> 47,725.

Patented May 16, 1865.





# UNITED STATES PATENT OFFICE.

WATERMAN L. ORMSBY, OF JERSEY CITY, NEW JERSEY.

## APPARATUS FOR ENGRAVING METALLIC PLATES.

Specification forming part of Letters Patent No. 47,745, dated May 16, 1865.

*To all whom it may concern:*

Be it known that I, WATERMAN L. ORMSBY, of Jersey City, in the county of Hudson and State of New Jersey, have invented, made, and applied to use a certain new and useful Improvement in Engraving Metallic Plates; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is a plan of my engraving-machine. Fig. 2 is a front elevation of the same. Fig. 3 is a side elevation, and Fig. 4 is a longitudinal section.

Similar marks of reference denote the same parts.

Metallic plates have been engraved by means of dies containing the required letters or designs, pressed into the surface of the plate by means of a blow from a hammer. In this mode it is found difficult to obtain a uniform impression, and there is liability that the letters or designs will not be perfectly in position.

The nature of my said invention consists in a peculiar engraved hammer, with the design in relief to be impressed into the surface of the plate by a blow struck by said hammer itself. I also arrange a universal bed, carrying the plate to be engraved in such a manner that any portion of its surface can be presented to the action of the design-hammer.

In the drawings, *a* is the plate to be engraved, sustained upon a movable bed, and capable of being adjusted, as hereinafter specified. A cross above the plate is the bar *b*, forming the support for the design-hammer, there being sufficient room for the plate and parts that carry it to be moved freely beneath this bar *b*, and said bar *b* is to be sustained firmly by any suitable frame. The edges of this bar *b* are beveled to form a V-slide for the rest *c*, that is movable lengthwise upon the bar *b* and adjustable by the screw *d*, acting in the nut 1 upon said rest *c*. *d'* is a milled disk or wheel by which the said screw can be rotated, and 2 is a spring with a double-inclined stud taking notches in the edge of *d'*, so as to prevent the screw moving accidentally, and also to facilitate the counting of the number of turns given to the said screw in adjusting the machine to any required position, as hereinafter set forth.

Upon the rest *c* is the hammer-bed *e*, that is attached by screws 3 and 4 4. The tail-piece

5 of said bed *e* extends to the rear, and is confined between two screws, 6 6, through studs on *c*. The screw 3 fits tightly its hole in *e*, while the holes for the screws 4 4 are elongated, the object being to adjust this bed *e* so that its center line shall be exactly at right angles to the bar *b*, or at a slight inclination, as may be required for correctly adjusting the hammer *f* that is carried by this bed, so that its design may be in its proper place when struck upon the plate *a*.

The design-hammer *f* is represented as a wheel upon the stock *f'*, and with the edge containing the raised engraving or design; but such hammer may be formed in any manner that will furnish the space for the engraved surface or design in relief, and the weight required for the concussion to strike the design into the plate.

The design-hammer *f* is secured upon the stock *f'* against the disk 7 by the ring 8 and nut 9. The hammer *f* can be turned around between 7 and 8, but is held so that there is no looseness by the said nut 9, and by a screw, 10, that clamps the ring 8 firmly to the stock *f'*.

*g* is a spring-dog, with a chisel-shaped end, taking one of the radial notches or scores in the flat side of the design-hammer *f* to hold the same and prevent the hammer turning. This dog is sustained by an arm that has an eye beneath the nut 9 and a tail-piece, 11, between the two adjusting-screws 12 upon the fixed ring 8. By this means the greatest accuracy can be obtained in adjusting the hammer, so that the design will be directly below the center of the hammer to strike equally upon the plate as the hammer is brought down, and where several designs are formed around the hammer they can be brought to position, as required, by turning said hammer after releasing the spring-dog *g*.

The hammer-stock *f'* is attached by and swings upon the pointed screws *h* in lugs on the bed *e*, and said screws take the ends of a rock-shaft, *h'*, formed with a slide or mortise in which the rear end of the hammer stock or handle is received, said handle being formed at this point as a block passing into said mortise and confined by a nut, 13, and a screw, 14, passes through said block at right angles to the handle or stock *f'*, so that this end of said handle can be raised or lowered to cause the design to coincide with the surface of the plate *a*.

The weight of the hammer and parts may



be counterpoised in any convenient manner. I, however, prefer the spring *k*, which should be strong enough to keep the hammer and parts elevated, and when the plate is in proper position and the parts adjusted so that the design will strike the plate correctly the hammer is to be raised and then struck down upon the plate. If one blow does not sink the impression sufficiently, a second may be given.

In order to indicate to the operator the exact place where the design will strike, and thereby aid him in adjusting the plate to the proper position, a spring-pointer, *i*, may be employed, set on a rock-shaft, 15, with a lever-arm, 16, acted upon by the lever 17, so that a pin, 18, on the rock-shaft *h'*, taking said lever 17, swings the rock-shaft 15, causing the pointer to draw back out of the way as the hammer descends to strike the plate.

Having thus described the means for controlling, adjusting, and giving motion to the design-hammer for producing the impression or engraving on the plate, I will now proceed to describe my means for presenting that plate to the design so that the impression may be made upon any desired part of said plate or any required groups of designs or impressions be produced.

*l l* are slide ways forming the bed of the machine, upon which is the lower movable bed *m*, that can be adjusted by the screw *n*, fitted with a spring-dog similar to that on the screw *d*. Upon this bed *m* is a circular bed, *o*, that moves upon the center gudgeon, 19, and is operated upon by the tangent-screw *p*, that takes into the rack-teeth 20 around said circular bed. The tangent-screw *p* is set in a stock, *q*, that is screwed at one end to the bed *m* and at the other end pressed to its rack by the spring 21. By turning this spring aside the tangent-screw and its stock can be turned around horizontally on its attaching screw sufficiently to disconnect the screw from the rack so as to rotate the bed by hand, if desired. Upon the top of the circular bed *o* is the V-bed *r*, that forms the rest for the sliding bed *s*; and *t* is a screw by which the bed *s* can be slid on *r*. The upper side of the bed *s* is provided with a second V-slide, *u*, which can be slid across *s* at right angles to *r* by means of the screw *v*, and upon this slide *u* is the gudgeon or center for a second circular bed, *w*, provided with the tangent-screw *w'*, stock 22, and spring 23, the same as those fitted to the circular bed *o*. This circular bed *w* is upon the under side of the bed *x*, that carries the plate *a*. The plate *a* is confined by the bars *y y*, that hook under the inclined edges of the bed *x*, and are set up by the screws 24 24, so as to hold the plate firmly.

It will now be understood that the adjustment of the design-hammer transversely of the machine, in connection with the movable beds, enables the workman to strike a blow by the design-hammer upon any part of the plate, and a series of the designs in concentric circles or

in a series of semicircles either in a straight or circular form may be produced.

The general mode of positioning the plate will be understood from the following. By means of the right-angled slides *s u* any part of the plate *a* can be brought under the design-hammer, and if the design is to be repeated in straight lines these slides enable this to be done in either parallel or diagonal line, or at right angles to each other, the circle *w* allowing the plate to be placed diagonally to the slides *s* and *u*. This circle *w* also allows the designs to be repeated in lines radiating from a center. If a circle is to be formed, the beds can all be brought to coincide with each other, and either circle employed in rotating the plate. In this case the radius of the circle is determined by moving the hammer laterally by its sliding carriage on the bar *b* or by moving the beds longitudinally on the slides *l*.

Semicircles and segments can also be produced on any part of the plate by the repetition of the design, and this may be done by turning the beds partially around upon the lower circle, and if a series of designs are to be impressed in the general form of a circle, or with a series of scallops around the edge, one bed, *o*, can be used to give the general form of the circle, while the other *w* is employed in producing the scallops.

The number of figures or shapes in which the design may be repeated is very great. I have therefore only given sufficient directions (as above) to enable the operator to understand the mode of using this machine, so that he may be able to exercise his own taste and judgment in the configuration of the shapes or groups in which the design or designs upon the hammer may be repeated.

What I claim and desire to secure by Letters Patent, is—

1. A circular hammer having several designs in relief around its edge, in combination with the dog *g*, substantially as specified.
2. Raising or lowering the back end of the design-hammer, substantially as specified, for causing the design on the hammer to coincide with the surface of the plate, as set forth.
3. The plate *e*, adjustable as specified, in combination with the plate *c* and design-hammer for the purposes of adjusting said hammer, as set forth.
4. The combination of two circular beds, *o w*, with the right-angled slides *s u*, forming a universal bed for adjusting the position of the plate to be engraved, as set forth.
5. The universal bed for carrying and adjusting the plate as aforesaid, in combination with the design-hammer, substantially as and for the purposes specified.

In witness whereof I have hereunto set my signature this 22d day of August, 1864.

W. L. ORMSBY.

Witnesses:

THOS. GEO. HAROLD,  
CHAS. H. SMITH.