

May 16, 1933.

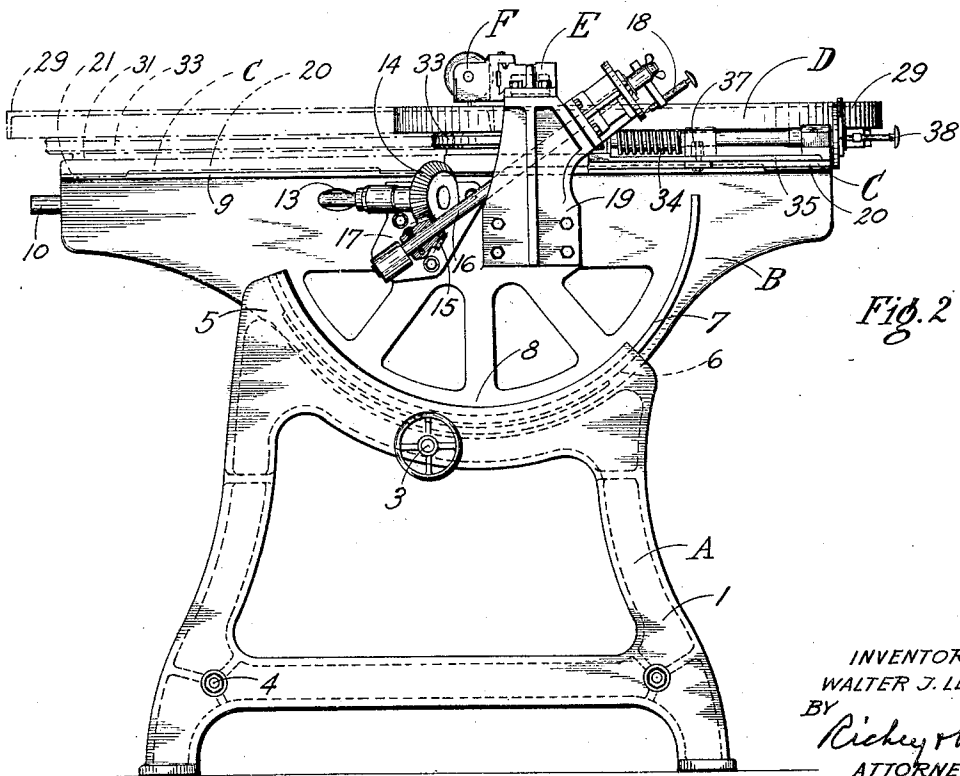
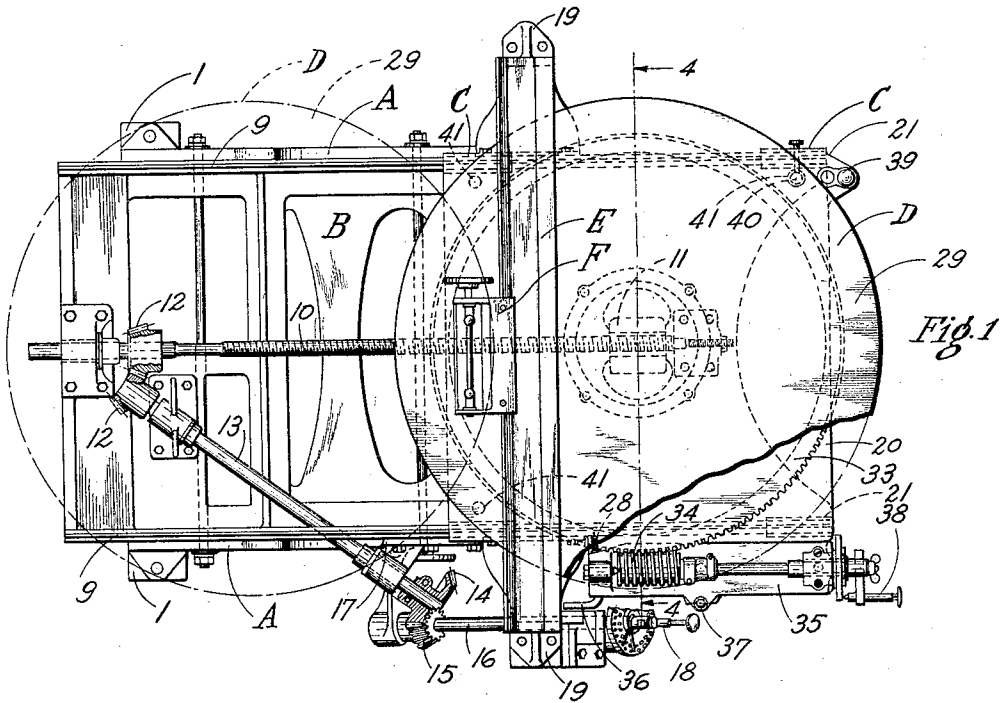
W. J. LEWIS

1,908,770

ENGRAVING, PRINTING, OR STAMPING MACHINE

Filed Sept. 26, 1928

3 Sheets-Sheet 1



INVENTOR
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3 Sheets-Sheet 2

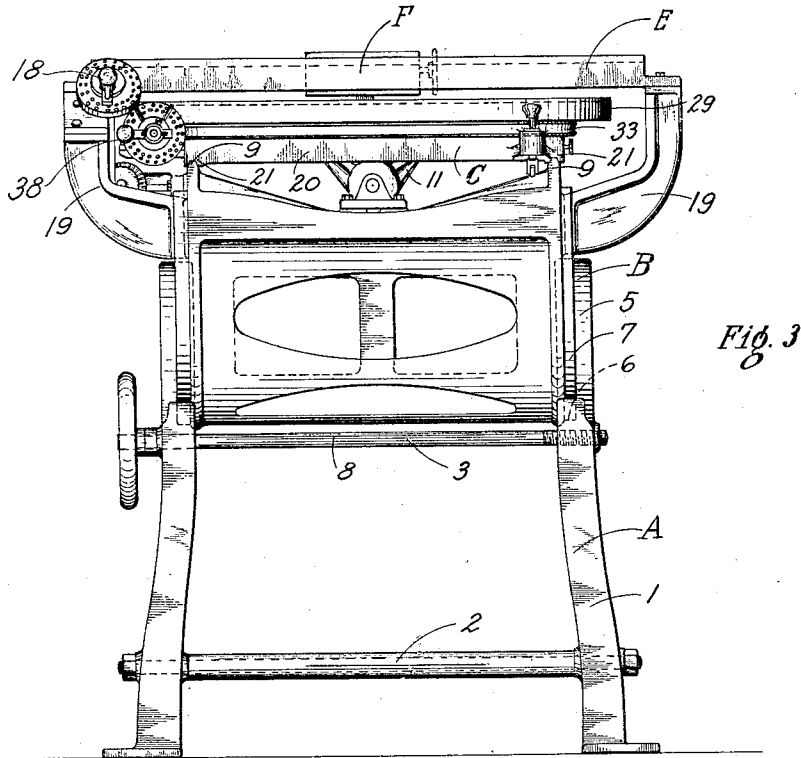


Fig. 3

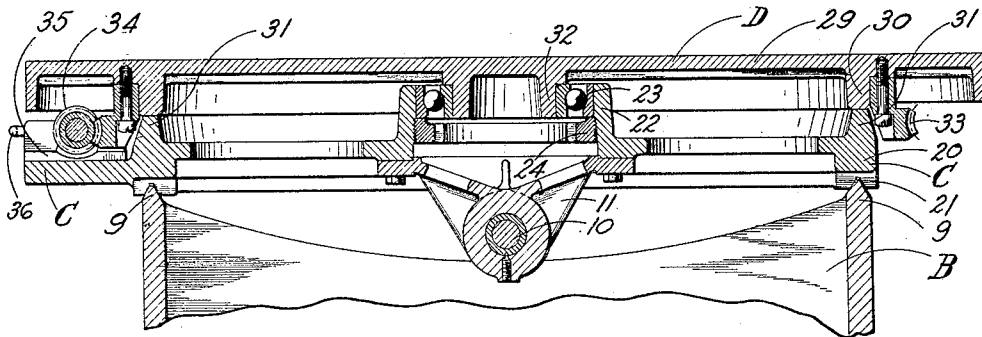


Fig. 4

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3 Sheets-Sheet 3

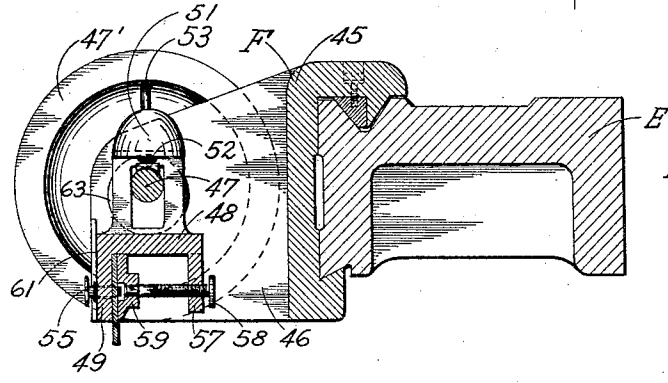
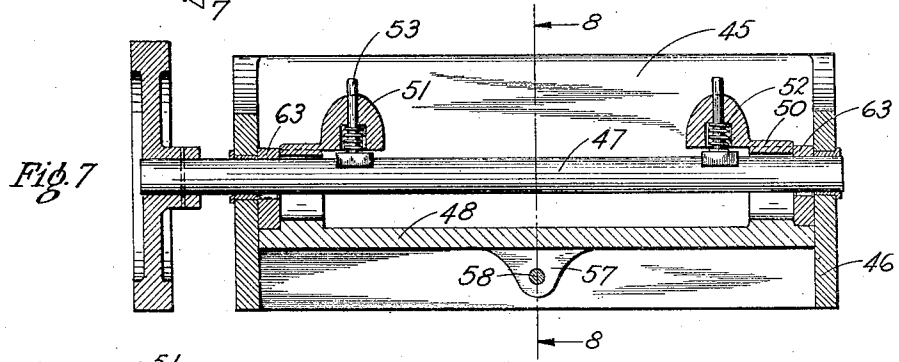
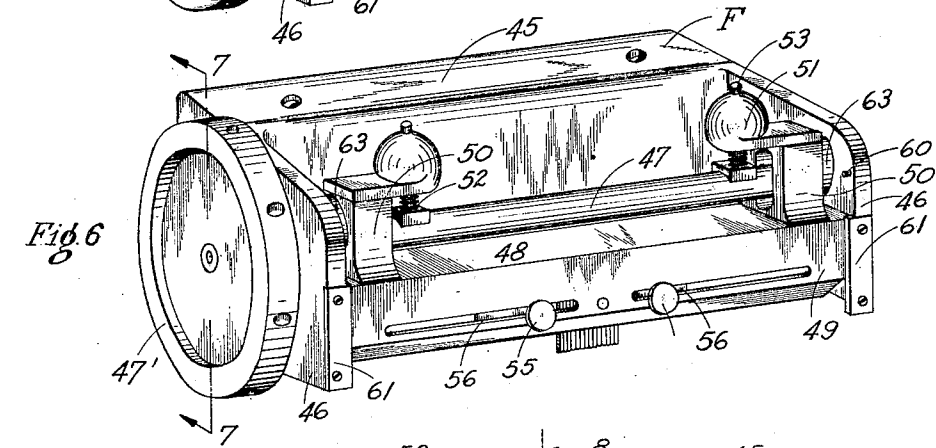
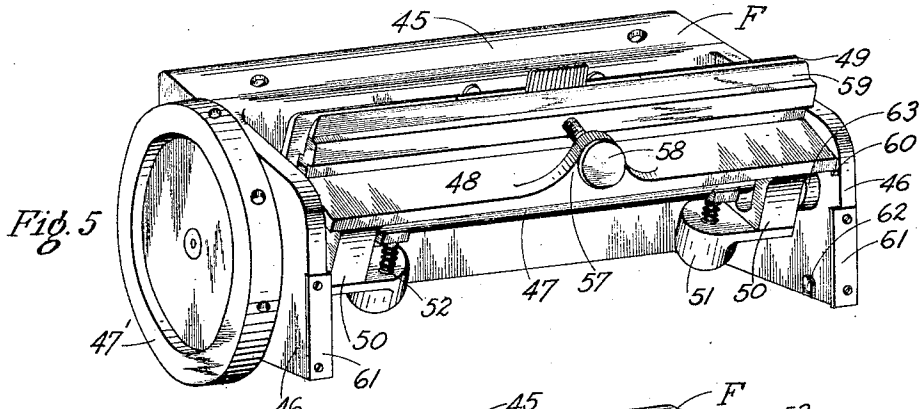


Fig. 8

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UNITED STATES PATENT OFFICE

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ENGRAVING, PRINTING, OR STAMPING MACHINE

Application filed September 26, 1928. Serial No. 308,347.

This invention relates to an engraving, printing or stamping machine.

It is necessary in a device for making wax engravings and for printing or stamping characters for reproduction that the type be accurately applied to the work. In machines customarily used for this purpose the type cannot rapidly be accurately positioned in the machines. The holding means have not been so constructed that the operator can obtain a clear view of the same when positioning the type therein and consequently the operator has been unable to rapidly and accurately secure the type in position. Furthermore, when the type has been presented to the work, under the customary construction, it has been impossible for the operator to accurately and rapidly determine if the type is in the exact position required to give the desired imprint upon the work. Means have not previously been provided for ensuring that all of the type are applied simultaneously to the work. It is desirable in machines for this purpose that the work be adjusted rotatably, transversely and at an angle to the vertical without displacing the same appreciably so as to inconvenience the operator. It is furthermore desirable that the above mentioned movement be effected by the operator from the front of the device with a minimum of movement on his part.

It is an object of this invention to provide a new and improved machine for use in making wax engravings, and printing or stamping characters, letters or words for purposes of reproduction.

It is a further object to provide a new and improved means for holding and manipulating type for such purposes whereby the type can be readily seen and the place upon the work upon which it is to engage can be accurately determined.

Another object is to provide a device of the class described, having improved means for shifting the work rotatably, transversely or angularly while maintaining the work in substantially the same horizontal plane.

Other objects will be apparent from the

specification and from the accompanying drawings in which latter;

Fig. 1 is a plan view of the entire machine with parts broken away;

Fig. 2 is a side elevation thereof; 55

Fig. 3 is an end elevation thereof;

Fig. 4 is a section along the line 4—4 of Fig. 1;

Figs. 5 and 6 are perspective views of a type holding mechanism in different positions; 60

Fig. 7 is a sectional view of the apparatus of Figs. 5 and 6 taken on the line 7—7 of Fig. 6, and

Fig. 8 is a sectional view of the complete composing stick taken on the line 8—8 of Fig. 7. 65

The machine consists essentially of a stationary base or legs indicated generally by A, a bed B carried thereby and adapted to tilt about a transverse horizontal axis, a carriage C slidable longitudinally upon the bed, and a table D rotatable about a vertical axis and carried by said carriage. 70

In addition, a printing mechanism supporting bar or rail E is carried by the carriage and extends transversely above the bed and on this the printing mechanism proper F is adapted to be moved transversely of the apparatus and to print or stamp upon the wax surfaces of the plates being operated upon, as will be hereinafter described. 75

Means for clamping the bed in any desired relation to the base are provided as are means for adjusting the carrier longitudinally along the bed and for adjusting the table angularly upon the carrier. 85

The base A is composed of two legs 1 shown as castings and connected near their bottoms by rods 2, these being, between the sides, surrounded by spacers so that when nuts 4 of the ends thereof are tightened these will be retained in relatively fixed relation. A rod 3 connects the sides near their tops and is not provided with a spacer as this controls the distance between the upper portion of the sides and is used to cause them to grip the bed. 90

The upper portions of the sides have in- 100

wardly directed flanges 5 forming between them arcuate channels or grooves 6 in which are received arcuate flanges 7 carried by the downwardly projecting sides of the bed B. Flanges 7 can be moved, when the tie rod 3 is released, within the grooves 6 so that the bed B is rocked as though it were mounted upon trunnions substantially in the plane of its upper surface. When it is desired to secure the bed in any given angular position it is only necessary to tighten a nut upon tie rod 3 thereby clamping the flanges 7 tightly within the grooves 6.

Extending longitudinally along the upper surface of the bed B are ribs or guides 9 upon which the carriage may be translated forward or rearwardly. The apparatus for effecting this translation is shown as a threaded shaft 10, pivoted centrally and longitudinally upon the bed B, which engages a nut or threaded lug 11 upon the bottom of the carriage, which shaft is rotated through bevel gears 12 by an angularly disposed shaft 13 extending from the rear of the bed out through the side thereof. The outer end of this shaft is provided with a spiral gear 14 meshing with another spiral gear 15 and a third shaft 16 extending upwardly and substantially longitudinally of the apparatus upon the exterior of the bed, these shafts and gears being supported in a bracket secured to the side of the bed B. The upper outer end of the last mentioned shaft 16 is provided with an index plate and handle 18 by which the shafts, gears and consequently the carriage may be actuated into accurate equal or unequal divisions.

Attached to both sides of the bed B substantially intermediate of said sides are two upwardly extending supports 19 upon which the type mechanism carrying base is supported.

The carriage comprises a substantially rectangular frame 20, provided with depending flanges 21 at each edge of the frame, formed to slide upon the guides and has a depending lug 11 engaging the threaded shaft 10. Centrally of this frame is an apertured hub 22 in which is positioned a thrust bearing 23, preferably of anti-friction type, the height of which is adjustable by means of a retaining ring 24 threaded into the bottom of the aperture through the hub, so that the relative loads upon the bearings and guides may be adjusted.

The table D consists of a flat circular disc-like top 29 having a depending circular flange 30 adapted to rest upon flanges 31 extending longitudinally on the upper side of the carriage C and has a central depending pintle 32 carried by the thrust bearing. The upper surface of this table is adapted to carry the plates upon which designs are being formed.

The peripheral flange 30 of the table D

carries rigidly a worm wheel 33 adapted to be engaged by the worm 34 for rotary adjustment. Rotation of the table D is effected by means of the worm 34 which is mounted for rotation in brackets extending rigidly from the plate 35. Plate 35 rests upon the carriage, being mounted for movement toward and away from the gear 33 by means of a slot and lug connection with the carriage. A spring 28, (see Fig. 1) normally pulls the plate 35 toward the gear 33, so that the worm 34 is meshed therewith. A handle 36, (see Fig. 1) is provided for manually pulling the plate 35 against the tension of the spring 28 away from the gear 33 and a pin 37 carried by the plate 35 is adapted to drop beyond the edge of the carriage C to maintain the worm 34 out of engagement with the gear 33. An index plate and handle 38 is provided on the worm shaft 25 through which the worm 34 can be actuated to rotate the gear 33 into any number of accurate equal or unequal divisions. The table can be locked in any one of four angular positions in the referred embodiment by means of a manually operated lever 39 (see Fig. 1) which when actuated causes a pin 40 to be forced into one of the holes 41 provided in the under surface of the table D.

From the above it will be seen that the work, which may comprise a sheet of copper or similar metal coated with wax, upon which engravings are being made, can be conveniently positioned in a plane in any desired angle (within limits) about a horizontal axis, can be conveniently rotated about an axis normal to its surface, and can be conveniently translated back and forth upon the supporting apparatus.

The stamping or printing mechanism F consists of an overhanging supporting bracket 45 carried by dove-tailed guides upon the bar E (see Fig. 8) and having at its outer end a substantially U-shaped frame 46, the legs of which extend toward the front of the machine. Pivoted within the legs of this frame is a shaft 47 provided on its left end, as viewed in Figs. 5, 6 and 7, with an actuating wheel 47' perforated for the reception of a pin or the like to operate the same, and knurled so that it may be conveniently grasped by the operator. Pivoted upon the shaft 47 is a composing stick or type holding means which comprises a bottom 48 and flanges 49 at right angles to each other. The bottom has downwardly extending slotted lugs 50 which encircle the shaft 47, the open ends of the lugs being closed by plates having overhanging bosses 51 which are perforated and counterbored to receive compression springs 52 and plungers 53 pressed by said springs upon the shaft 47 to retain the composing stick normally with its bottom closely adjacent to said shaft.

The flange 49 of the composing stick is provided with two longitudinally extending slots through which headed adjusting screws 55 extend, the screws being threaded into blocks 56 which serve as stops to retain the type within the composing stick longitudinally of the same. The edge of the bottom of the composing stick remote from the back thereof is provided with a threaded lug 57 through which extends a set screw 58 having an enlarged knurled head. The end of this screw engages a clamping plate 59 so that the same may be pressed toward the back of the composing stick to clamp type between the said back and the plate 59.

Stops or guides 60 are secured to the legs of the frame and limit the rotation of the composing stick to an upward position. Guides 61 carried by the frame stop rotation of the composing stick at its operative position and guides 62 cooperate with guides 61 to form a guiding channel for the stick in its movement toward the work to be later described.

Keyed to the shaft 47, between the legs of the support and the legs of the composing stick are cams or eccentrics 63 for a purpose to be hereinafter described.

The operation of this part of the apparatus is as follows:

When the operator desires to stamp or print certain letters or symbols upon the plate which he is engraving, he selects suitable type and places them within the composing stick, adjusting their position and holding them longitudinally by means of the blocks 56 and set screws 55. When the line of type is adjusted satisfactorily, he tightens set screws 58 and so clamps the type between the rear walls 49 and plate. When this has been done he rotates the hand wheel in a counter-clockwise direction as seen in Figs. 5 and 6. Upon the initial rotation of this hand wheel, the composing stick rotates with the shaft being held frictionally thereto by the plungers, until the type is depending and presents its face in a plane parallel to the plate being operated upon, as shown in Fig. 6, when the composing stick engages the stops 60 secured to the legs of the support which stops prevent it from making any further rotation. Further rotation of the hand wheel and shaft causes the cams or eccentrics to rotate relative the composing stick, forcing the same downwardly to impress the design upon the wax coating of the plate or the like. Upon reversing the rotation of the handle, the cams or eccentrics are moved to their original position relative the composing stick, allowing the same to rise while remaining against the stops or guides 60, and thereafter rotate the same through about 180 degrees back to its original position as shown in Fig. 4. By this means it is always possible to pre-

sent the type normal to the surface upon which it is desired to stamp a design and so effect a sharp, clear impression therein.

While I have described the illustrated embodiment of my invention in some particularity, obviously many variations and modifications thereof will readily occur to those skilled in the art to which it appertains, and I do not, therefore, limit myself to the precise details shown and described but claim as my invention all embodiments falling within the scope of the subjoined claims:

I claim:

1. In an engraving or stamping machine, the combination of rotatable type holding means, means for interrupting the rotation of said type holding means and means operative to rotate said type holding means and force the type radially outward against the work.

2. In an engraving or stamping machine, rotatable type holding means, means for interrupting the rotation of said type holding means, rotatable means associated therewith, and means operative upon rotation of the rotatable means to rotate said type holding means and to force the type holding means radially outward.

3. In an engraving or stamping machine, rotatable means, means for interrupting the rotation of said type holding means, type holding means rotatably associated therewith, means for yieldably securing the type holding means to the rotatable means and means operative upon rotation of the rotatable means to force the type holding means radially outwardly.

4. In an engraving or stamping machine, type holding means, means for interrupting the rotation of said type holding means, rotatable means operatively associated therewith, means for yieldably securing the type holding means to the rotatable means and cam means operative upon rotation of the rotatable means to force the type holding means outwardly.

5. In an engraving or stamping machine, rotatable means, type holding means, means for yieldably securing the type holding means to the rotatable means for rotation therewith, means for interrupting the rotation of the type holding means, and means operative upon rotation of the rotatable means for forcing the type holding means outwardly.

6. In an engraving or stamping machine, rotatable means, type holding means associated with said rotatable means, means adapted to limit rotation of the type holding means, and means for forcing the type holding means radially outwardly upon further rotation of said rotatable means.

7. An engraving or stamping machine comprising an adjustable work support, type holding means, means for yieldably support-

ing the type holding means opposite the work support to rotate toward and away therefrom, and means operative to force the type holding means outwardly to imprint the type against the work.

8. An engraving or stamping machine comprising a work support, rotatable means, type holding means rotatably associated therewith, means for yieldably securing the type-holding means to the rotatable means, a bridge for carrying the rotatable means, means permitting relative lateral adjustment between the work support and the bridge, and means operable upon rotation of the rotatable means to force the type holding means outwardly engaging the type with the work.

9. In an engraving or stamping machine comprising a work support, means for effecting rotary and transverse adjustment thereof, a rotatable means, a type-holding means, means for yieldably securing the type-holding means to the rotatable means for rotation therewith and means for forcing the type-holding means outwardly.

10. An engraving or stamping machine comprising a work table, a carriage, anti-friction means to rotatably support the work table upon the carriage, a rotatable means, a type-holding means, means for yieldably securing the type holding means to the rotatable means for rotation therewith, and means operable upon rotation of the rotatable means for forcing the type-holding means into engagement with work on said work table.

11. An engraving or stamping machine comprising a table, a rotatable means, a type holding means, means for yieldably securing the type-holding means to the rotatable means, means for effecting rotary and transverse adjustment of the table with respect to the type holding means, and means operable upon rotation of the rotatable means for forcing the type-holding means into engagement with the work.

12. An engraving or stamping machine comprising a bed provided with arcuate bearing surfaces described about points in a horizontal line, a work table carried by said bed, a rotatable means, a type-holding means, means for yieldably securing the type-holding means to the rotatable means, means operable upon rotation of the rotatable means for forcing the type-holding means into engagement with the work.

13. An engraving or stamping machine comprising rotatable type-holding means, a work support, means for effecting angular adjustment of said work support, means for interrupting the rotation of said type-holding means, and means operable upon rotation of the rotatable means for forcing the type holding means outwardly to engage said work support.

14. In an engraving or stamping machine, rotatable means, type holding means adapted to be rotated therewith, supporting means for the rotatable means adapted to limit the rotation of the type holding means and means operable upon further rotation of said rotatable means for forcing the type holding means outwardly.

15. In an engraving or stamping machine, rotatable means, type holding means yieldably secured to said rotatable means and adapted to be rotated therewith, means for interrupting the rotation of the type holding means, and means operative upon rotation of the rotatable means for forcing the type holding means outwardly.

In testimony whereof I hereunto affix my signature this 10th day of September, 1928.

WALTER J. LEWIS.

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