H. A. BURGER.

ETCHING MACHINE.

APPLICATION FILED JAN. 5, 1914.

1,145,183.

Patented July 6, 1915.

Fig. I.

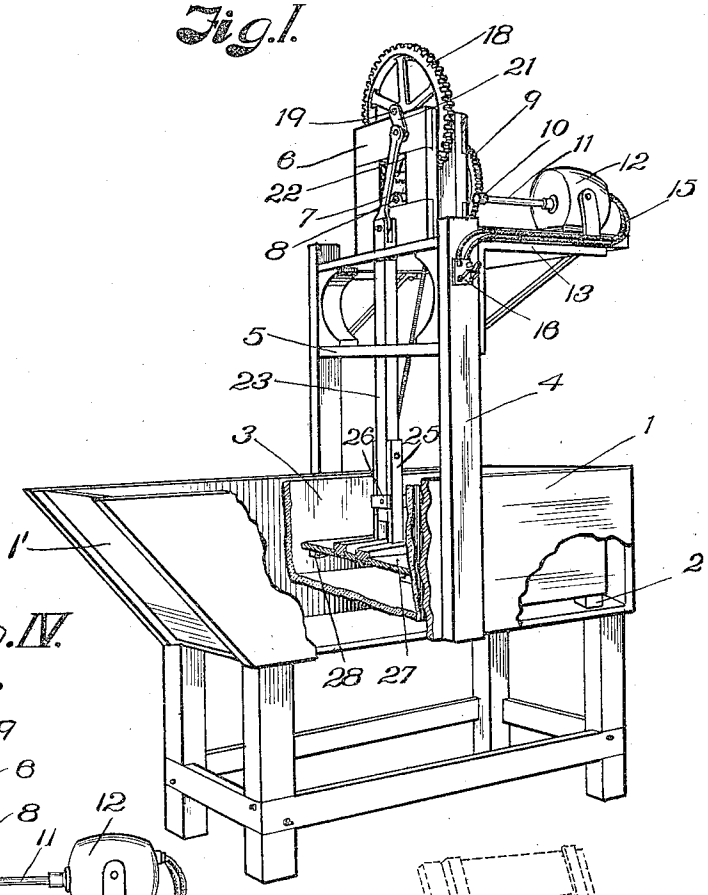


Fig. IV.

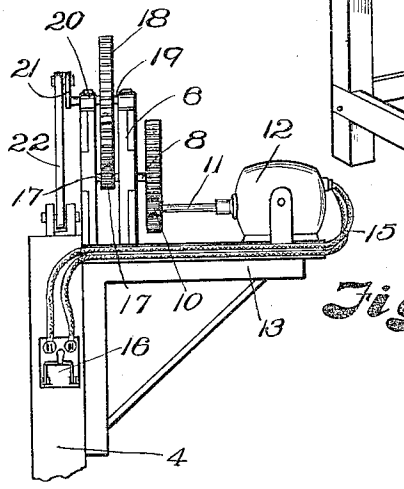


Fig. II

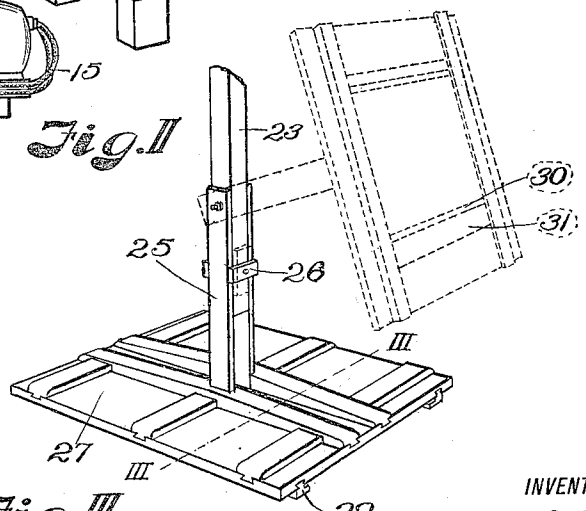
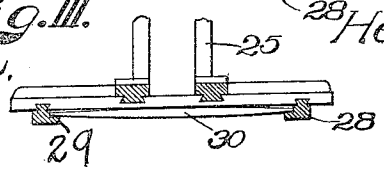


Fig. III.



WITNESSES:

Lynn A. Robinson.

L. L. Coates.

INVENTOR

Herman A. Burger.

BY Arthur C. Brown

ATTORNEY

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HERMAN A. BURGER, OF KANSAS CITY, MISSOURI.

ETCHING-MACHINE.

1,145,183. Specification of Letters Patent. Patented July 6, 1915.

Application filed January 5, 1914. Serial No. 810,401.

To all whom it may concern:

Be it known that I, HERMAN A. BURGER, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Etching-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to an etching machine, and more particularly to a device for the production of half-tone, line and other process printing plates by means of an acid bath; the principal object of the invention being to provide means for striking a metal plate against the surface of the acid bath to bring the plate into contact with the acid, so that the plate may be treated, and at the same time provide for cleaning the plate and thereby facilitate the process. In accomplishing this object I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawings, wherein:—

Figure I is a perspective view of an etching machine constructed according to my invention. Fig. II is a detail perspective of the plate rack and pitman. Fig. III is a cross-section of same on the line III—III, Fig. II. Fig. IV is an elevation of the pitman and driving mechanism.

Referring more in detail to the parts:—1 designates a tank which is supported above the floor by any suitable means, so that it stands at a height convenient for a person having charge of the etching; one end of the tank being preferably inclined at 1′ in order to facilitate the insertion and removal of the metal plate in its rack. Removably located within the tank, and preferably supported on rails 2 on the bottom thereof, is a porcelain or like vessel 3, having the same contour and dimensions slightly less than those of the tank, so that it may be easily removed therefrom when it is to be cleaned. Mounted on the tank are side standards 4, having cross-bars 5 at the top upon which a frame 6 is mounted.

Journaled in bearings 7 on the frame 6 is a drive shaft 8, having a gear wheel 9 meshing with a pinion 10 on the shaft 11 of a motor 12, which is supported on a platform 13 carried by the side standards and connected with a source of electrical supply through wiring 15 having the control switch 16. The shaft 8 has a pinion 17, meshing with the gear wheel 18 on a shaft 19 that is journaled in bearings 20 on the frame 6 and provided with a crank 21 that is adapted for actuating the link 22 of a pitman 23, which latter is slidably mounted within the cross-bars 5, and depends into the tank. Pivotally connected with, and lying along opposite sides of, the lower end of the pitman, are arms 25 which are normally held in vertical alinement with the pitman by latches 26 that are pivotally mounted on the pitman and adapted to turn over the edges of the arms, and fixed on the lower ends of said arms is a plate rack 27 comprising cross-bars and a face plate having mortised joints, in order to connect the parts otherwise than by the use of metal screws or bolts. On the under face of the rack 27 are rails 28 having lips 29 spaced from the face of the plate to provide facing grooves into which the ends of the wooden bars 30 may be projected to hold the etching plate 31.

In using the device, presuming the parts to be constructed and assembled as described, with the vessel 3 provided with an acid bath, when the etching plate is to be inserted in the rack, the latches 26 are turned to free the arms from the pitman so that the rack may be turned upwardly, as illustrated in dotted lines, Fig. II, so that the etching plate may be placed against the bottom of the rack and the lock bars slid into the grooves between the bottom of the rack plate and the lips 29 of the rails 28. With the etching plate in place, the rack is turned to active position and locked to the pitman, so that when the pitman is reciprocated by the driving mechanism, the plate will be raised and lowered rapidly within the vessel; the acid of the vessel being at such a level that the plate will be struck against the top of the liquid on the down stroke. It is apparent that with this construction, the blow of the plate against the top of the liquid will not only serve the purpose of the usual acid wash, but the impact will serve to forcibly remove particles of the metal which has been removed by the acid, and thereby result in a quicker etching

than can be secured by the ordinary bath or wash. It is also apparent that the rack may be lifted easily for inspection and the plate removed or replaced without loss of time.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters-Patent, is:—

An etching machine comprising a tank, standards on said tank, driving mechanism mounted on the standards and comprising a crank member, guides on the standards, a pitman adapted for vertical reciprocation in the guides, and having operative connection with said crank, arms pivotally mounted on opposite sides of the pitman at the lower end thereof, a plate rack fixed on said arms, and latches pivotally mounted on the pitman and adapted for projection over said arms to retain the latter in operative position relative to the pitman.

In testimony whereof I affix my signature in presence of two witnesses.

HERMAN A. BURGER.

Witnesses:
R. F. THOMAS,
LETA E. COATS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."