V. C. RONNING.

ETCHING DEVICE.

APPLICATION FILED FEB. 7, 1916.

1,243,630. Patented Oct. 16, 1917.

Fig. 1.

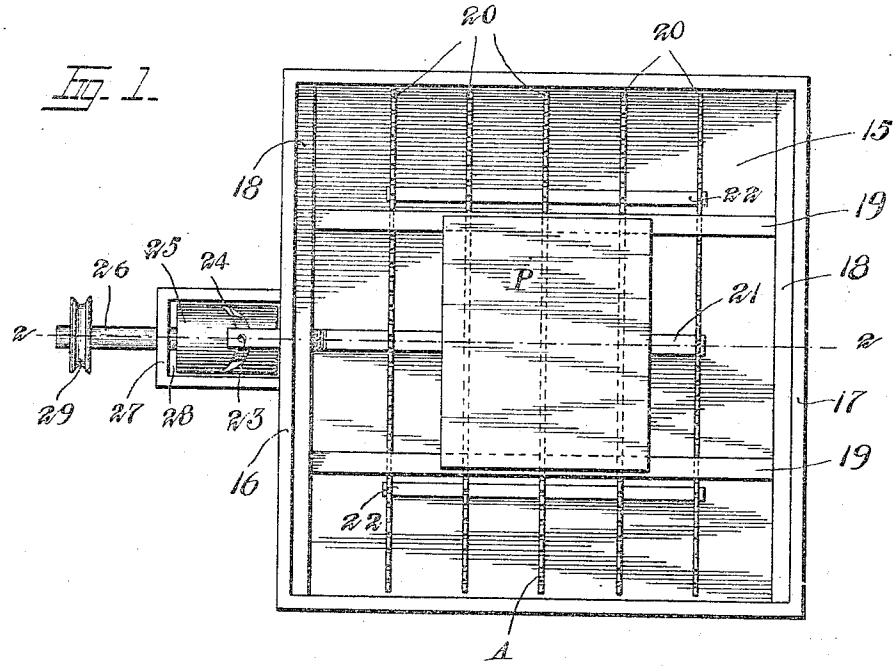


Fig. 2.

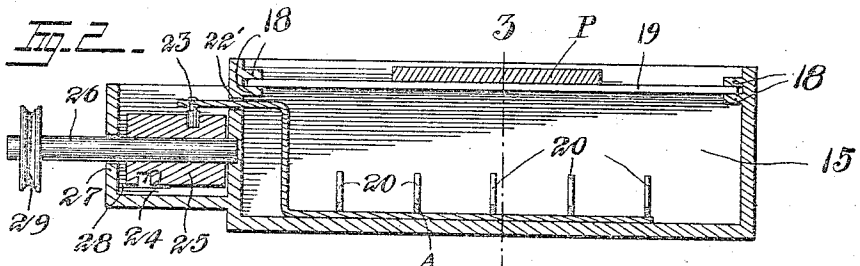
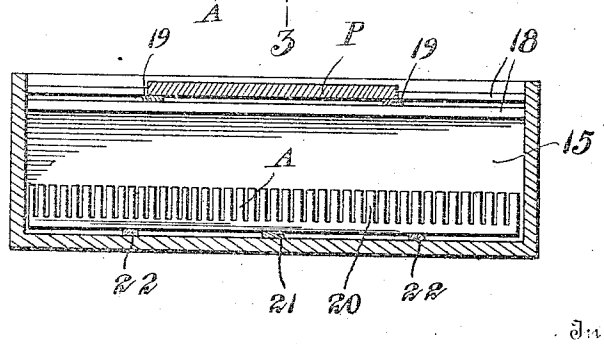


Fig. 3.



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ETCHING DEVICE.

1,243,630. Specification of Letters Patent. Patented Oct. 16, 1917.

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To all whom it may concern:

Be it known that I, VICTOR C. RONNING, a citizen of the United States, residing at Utica, in the county of Oneida and State of New York, have invented new and useful Improvements in Etching Devices, of which the following is a specification.

This invention relates to etching devices, and it has particular reference to an etching trough having a rack or supporting device for the plate that is to be etched, said supporting device being readily adjustable to plates of various sizes, and said trough being equipped with a simple and improved device for effectively agitating the acid used in the etching process.

A further object of the invention is to produce a simple and improved device of the class described wherein the agitating device is mechanically operated.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawing has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

In the drawing,—

Figure 1 is a top plan view of a device constructed in accordance with the invention.

Fig. 2 is a vertical sectional view taken on the line 2—2 in Fig. 1.

Fig. 3 is a transverse sectional view taken on the line 3—3 in Fig. 2.

Corresponding parts in the several figures are denoted by like characters of reference.

The tray or box 15 which is usually made of earthen ware, porcelain or other acid-proof material is usually square or rectangular in outline, as shown. The front and rear walls 16, 17 of the box are provided on their inner opposed faces with guides 18 whereby cross bars 19 are slidably and adjustably supported, said cross bars constituting a rack for the purpose of supporting the plate P that is to be etched, it being obvious that any desired number of cross bars may be used, so that a plurality of plates may be simultaneously operated on when desired.

The agitator A is composed of a plurality of combs or rakes 20 mounted on a bar 21 which is slidably supported in the bottom of the trough, said forks or rakes being also connected together by braces 22, whereby the construction is reinforced. The upper extremities of the combs 20 are suitably spaced below the cross bars constituting the rack on which the plate is supported. One end of the slidable bar 21 is extended through a slot 22′ in the front wall of the casing and is provided with a tracker 23, such as a pin carrying an anti-friction roller which engages a spirally disposed or cam-shaped track 24 in a cylinder 25, said cylinder being mounted on a shaft 26 which is supported for rotation in bearings in the front wall 16 of the trough and in a wall 27 of a housing 28 which is mounted or supported exteriorly on the front wall 16 of the trough. The shaft 26 may be equipped with a driving pulley 29 adapted to receive motion from any convenient source of power.

When the shaft 26 carrying the worm cylinder 25 is rotated a reciprocatory motion will be imparted to the agitator whereby the acid contained in the trough will be spread evenly against the downwardly exposed face of the plate that is to be etched, the etching process being thus performed in a rapid and satisfactory manner. By operating the agitator mechanically instead of manually, which is now usually done, one operator may divide his attention between the plates and a plurality of etching troughs. By supporting the plate which is to be etched on the cross bars 19 in the top of the trough, the said plate is not only made conveniently accessible, but by the arrangement shown and described a plurality of plates may be conveniently arranged in position to be operated on at the same time. The peculiar construction of the agitator A, the same consisting of a plurality of suitably connected and supported combs, the acid contained in the trough will be thoroughly agitated without danger of setting up an objectionable wave motion, the teeth of the combs permitting the acid to pass therebetween as will be readily understood, thus

setting up a sufficient degree of agitation without forcing the entire body of the acid from one end of the trough to the other.

Having thus described the invention, what is claimed as new, is:—

1. In an etching device, an etching trough, an agitator slidable in the bottom thereof and having a stem portion projecting through one of the walls of the trough, and means for mechanically reciprocating said agitator, said means including a driven shaft, a cylinder mounted on said shaft and having a cam-shaped track, and a tracker carried by the stem of the agitator in engagement with the track.

2. In an etching device, an etching trough, an agitator supported in the bottom of the trough, said agitator comprising a bar having a stem portion that extends through a wall of the trough, and a plurality of combs mounted on said bar, means for mechanically reciprocating the agitator, guides on the inner faces of opposed walls of the trough, and a plate supporting rack including cross bars adjustably mounted on the guides.

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

VICTOR C. RONNING.

Witnesses:

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