W. H. CARSON.

Amalgamator.

No. 163,847. Patented June 1, 1875.

Fig. 1.

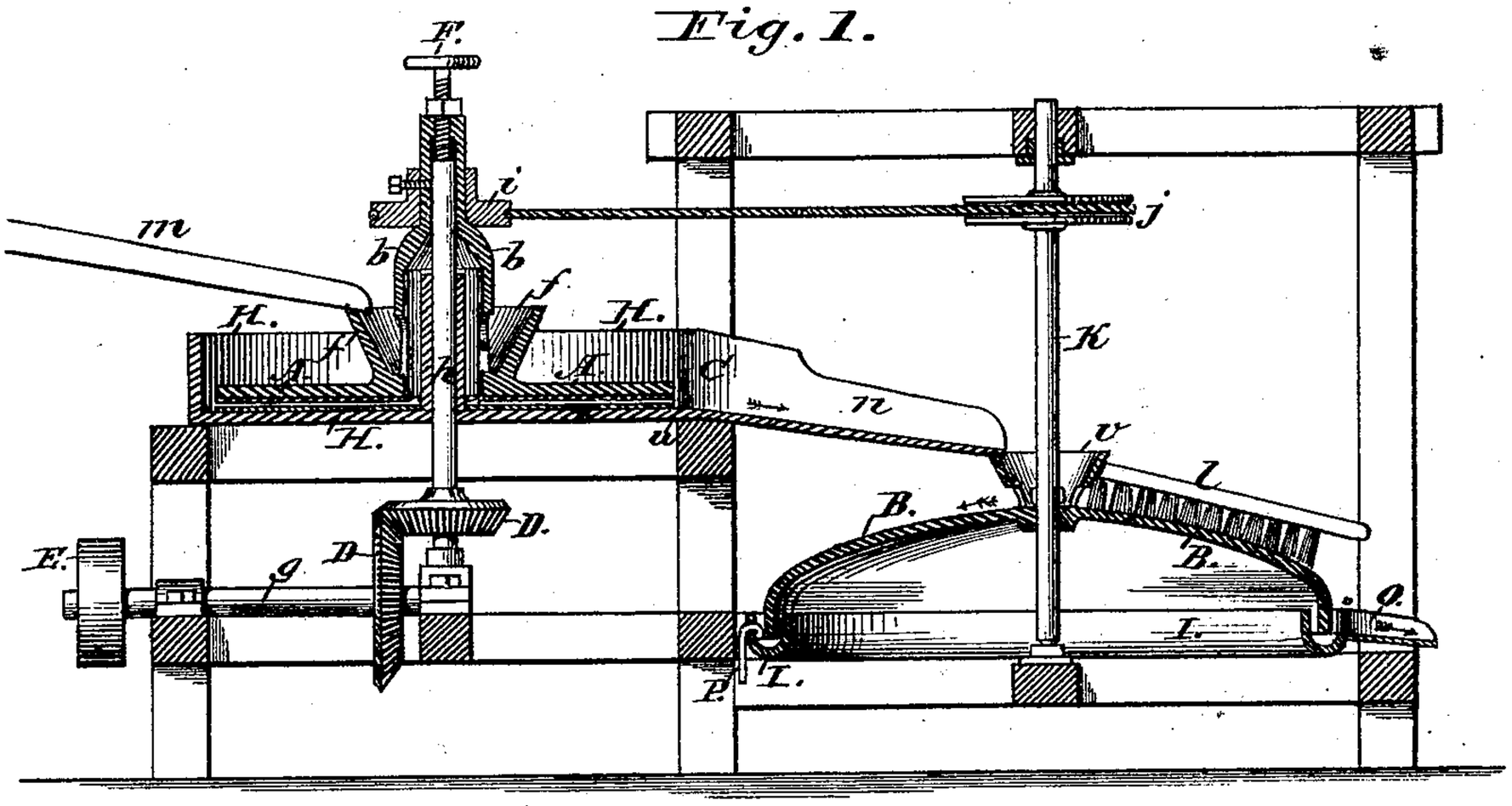


Fig. 2.

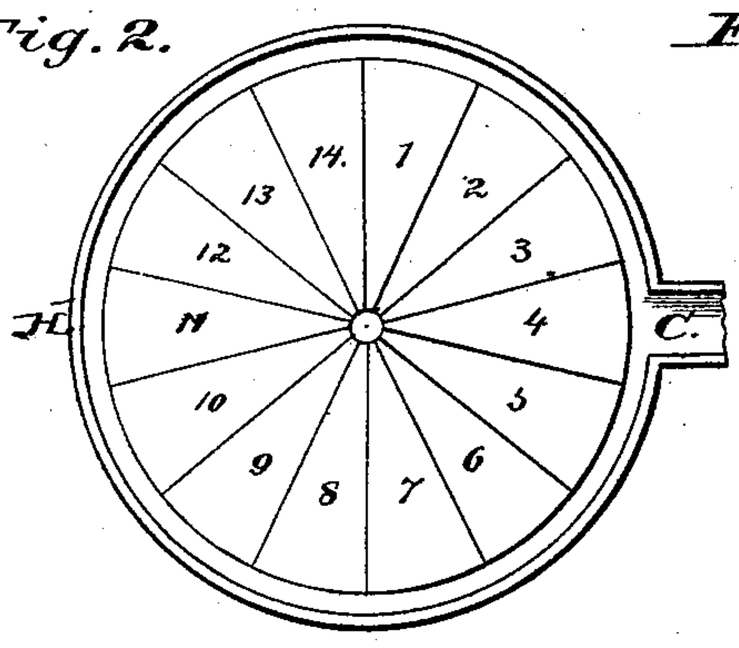


Fig. 4.

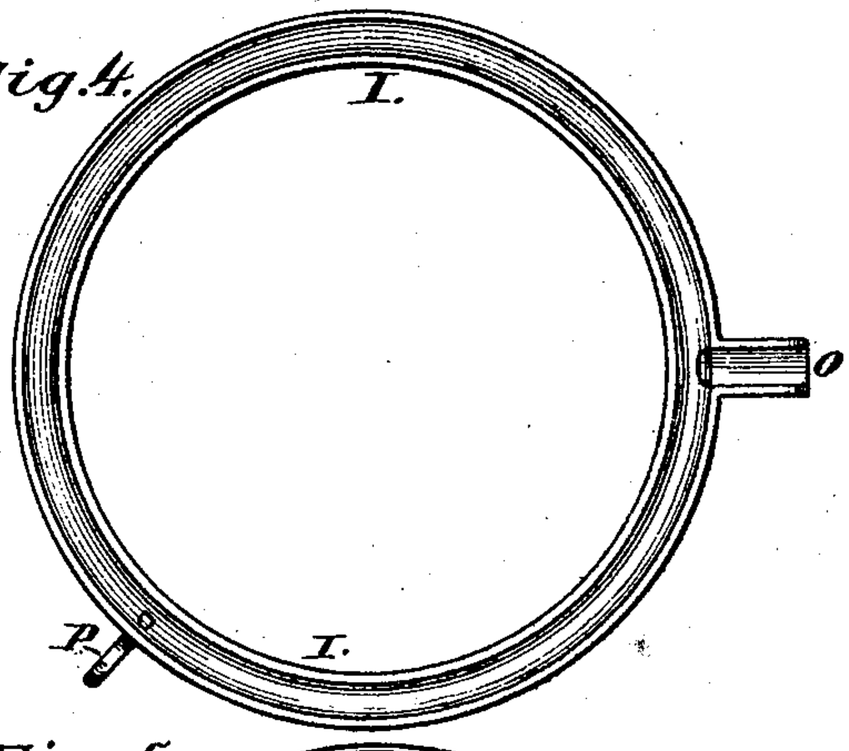


Fig. 3.

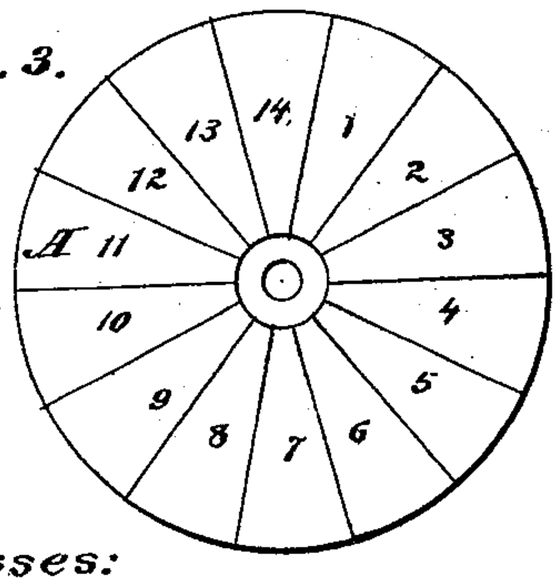
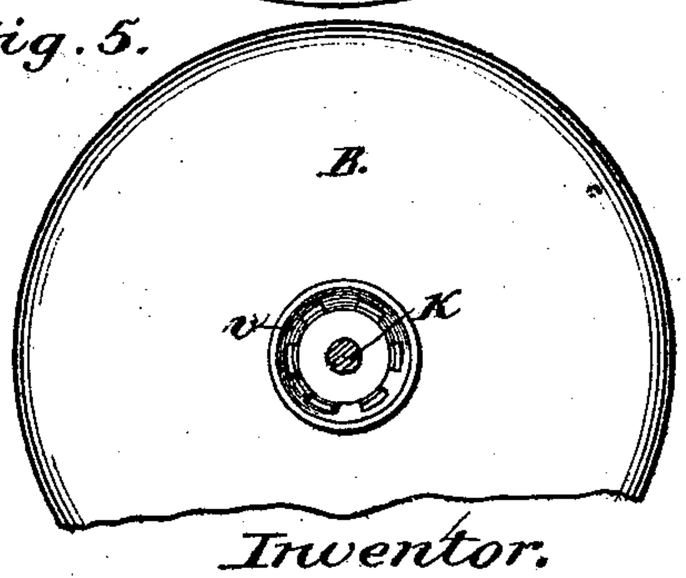


Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM H. CARSON, OF SAN JOSÉ, CALIFORNIA.

IMPROVEMENT IN AMALGAMATORS.

Specification forming part of Letters Patent No. **163,847**, dated June 1, 1875; application filed September 10, 1874.

To all whom it may concern:

Be it known that I, WILLIAM HORACE CARSON, of the city of San José, county of Santa Clara and State of California, have invented certain new and useful Improvements in Amalgamators for the Saving of Gold and Silver Amalgamated with Quicksilver, and for saving the quicksilver which has been used in amalgamating said metals; and I do hereby declare that the following, taken in connection with the drawings which accompany and form a part of this specification, is a description of my invention sufficient to enable those skilled in the art to make and use the same.

My invention relates, particularly, to the saving of the quicksilver and the amalgam of the precious metals, after the working of the pulp carrying the same, in the batteries, pans, and settlers in general use for that purpose, by passing such pulp, with whatever powdered quicksilver, amalgam, and slum it may contain, under pressure, through my amalgamator, and concentrating and saving those precious metals therein which heretofore have been permitted to escape.

The drawings represent an amalgamator as a unit, and in such sections as are necessary to be separately shown, wherein the same letters refer to like parts of the machine in all the figures.

Figure 1 is a side elevation of my amalgamator, cut vertically and lengthwise centrally through all its parts, each in its proper position for work. Fig. 2 is a plan view of the upper surface of my shallow pan, and representing bright amalgamated copper plates or dies of any desired form, and which are marked in the drawing from 1 to 14, inclusive. Fig. 3 represents the under surface of my novel muller A, and is provided with similar amalgamated copper plates, which, in the drawing, are also marked from 1 to 14, inclusive. Fig. 4.—I I represent a trough, which is provided with a discharging-spout, O, and a siphon, P. Fig. 5 is a plan view of my separator, surmounted by its distributing-funnel *v*.

A represents my muller, and B my separator. C is a spout, extending outward from the pan H, through which, and the trough *n*, the pulp passes from the pan H to the distributing-funnel *v*, which surrounds the shaft *k*. D represents gearing beneath the pan H, which rotates the muller A, and, through the endless chain or belt *i j*, also rotates the crowning inclined plane B. E is the driving-pulley, which, rotating the shaft *g* in its turning, also rotates the shaft *h*, which latter shaft is extended upward through a hollow cone, which latter extends upward from, and around the center of, the pan H, and by a feather entering its top, or by a set-screw, also rotates the muller A, its receiving-funnel *f*, its hollow and perforated cone *b*, and its regulating-screw F. *l* is a stationary brush, which I use to brighten and to keep clean the amalgamated copper surface of the crown-shaped inclined plane B as the latter is rotated beneath it. I I represent a circular trough, in which the edge of the inclined plane B travels in its rotation, and deposits its amalgam, quicksilver, and pulp therein, and from which trough the disengaged quicksilver passes off through the siphon P into a receiving-vessel, the amalgam being retained in the bottom of the pan H and in the trough I, while the worthless pulp passes off with the water at the spout *o*.

The funnel *f* receives the pulp to be worked from the trough *m*, and discharges it inwardly through spaces in the cone of the muller, and passes it beneath the muller A at the center, while the funnel *v*, receiving its pulp from the trough *n*, distributes it outwardly upon the upper surface of the inclined plane B.

I make my pan H of cast-iron, wood, or any desired material, fixing the copper plates, which I amalgamate with quicksilver, upon the surface of the pan, lapping their edges so as to form alternate elevations and depressions. My muller I make of like material, and fix upon its lower surface, as shown in Fig. 3, like copper plates, coated with quicksilver, and I permit the latter, in running, nearly to touch, but not to grind upon, the corresponding copper plates of the pan, at the same time using in the pan a sufficient quantity of quicksilver to keep the plates fully supplied with that material, by which contrivance I bring every particle of the pulp into forcible contact with the quicksilver under pressure, and thus amalgamate all of the precious metals which are free to the action of the quicksilver. To effect this the more certainly I dam the quicksilver back

in the pan by placing an obstruction in the bottom of the spout *c*, as shown by the three dots at *u*, which, while it holds the quicksilver and rich amalgam back, and floods the copper plates, permits the poorer pulp and slum to pass over it and down *c* and the trough *n* to the distributing-funnel *v;* and, when I desire to clean up my pan H, I remove the obstruction and draw off the quicksilver and amalgam through the spout *c*. The funnel *v* distributes the pulp outwardly through orifices provided in its sides for that purpose, (seen in Fig. 5,) and upon the upper surface of the inclined plane of amalgamated copper B.

The pulp is fed to my amalgamator continuously, and is taken from the battery, pans, or settlers to the funnel *f* of the muller through the trough *m*, and follows the general direction shown by the arrows until the worthless pulp is discharged at the spout *o*.

To rotate the separator B *v* I place near the top of the shaft *k* a pulley, *j;* and also near the crown of the hollow shaft *b* of the muller a corresponding pulley, and connect such pulleys by a belt or endless chain, by which contrivance the shaft *h*, which rotates the muller A and its adjuncts, also rotates the separator B. The whole machinery is placed upon, and provided with, such convenient and firm framework as may be desired.

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

1. The pan H, provided with a bottom formed of amalgamated copper plates or dies forming alternate elevations and depressions, and the spout C, in combination with the muller A, also provided with amalgamated copper shoes and the funnel *f*, substantially as and for the purpose set forth.

2. The rotating copper-surfaced dome-shaped separator B, provided with distributing-funnel *v*, in combination with the stationary brush *l* and trough I, provided with the spout *o* and siphon P, constructed to operate substantially as and for the purpose set forth.

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Witnesses:

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