L. Griswold,

Ore Mill.

No. 112,804. Patented Mar. 21. 1871.

Fig.1.

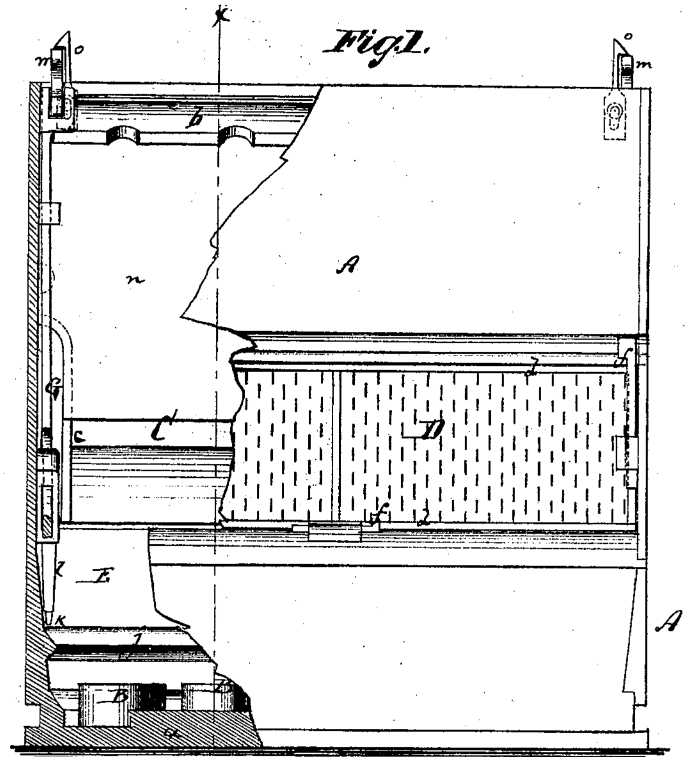
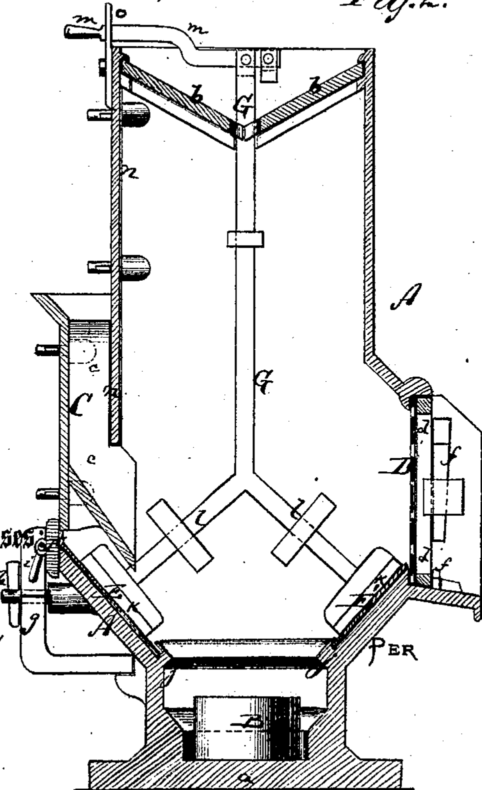


Fig.2.



Witnesses:

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LYMAN GRISWOLD, OF DENVER, COLORADO TERRITORY.

Letters Patent No. 112,804, dated March 21, 1871.

IMPROVEMENT IN COMBINED ORE-CRUSHERS AND AMALGAMATORS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, LYMAN GRISWOLD, of Denver, in the county of Arapahoe, Colorado Territory, have invented a new and improved Combined Ore-Crusher and Amalgamator; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

Figure 1 represents a side elevation, partly in section, of my improved crusher and amalgamator.

Figure 2 is a vertical transverse section of the same, taken on the plane of the line *x x*, fig. 1.

Similar letters of reference indicate corresponding parts.

My invention relates to ore-crushers and amalgamators, and consists in certain improvements, which will be first described in connection with all that is necessary to their full understanding, and then clearly pointed out in the claim.

A in the drawing represents the case or box within which the crusher-dies B B are set up on the bottom *a* of the same.

The punches are secured to rods that pass through the trough-shaped cover *b* of the case, said punches and rods being not shown in the drawing.

The cover *b* of the case A is made double inclined, so that it is deeper along the middle than at the sides, and serves as a trough for the water, by which the rods are lubricated and the ore moistened.

The holes in said trough for the rods are larger than the rods, to permit the water to enter the case.

The middle portion of the case A is somewhat enlarged, as shown in fig. 2, so as to constitute the chute C for inserting the ore, and opposite to said chute, to receive the screen D.

The chute is formed in shape of a longitudinal hopper, extending from end to end of the case, and has its inner side open near the bottom, to discharge its contents into the case.

The bottom of the chute is inclined for guiding the ore properly to the dies.

The ends of the chute are, by plates *c c*, kept a distance off the ends of the case, so that the ore may be kept from the frames or levers used for clamping the amalgamating-plates, which are hereinafter described.

The screen D is secured in place by a frame, *d*, which is fastened by means of keys or wedges.

E E′ are the amalgamating-plates. They are secured in inclined positions to the inner sides of the case A, and extend from end to end of the same. They are preferably made of copper.

Quicksilver is used in the case during the crushing process.

The plate E under the bottom of the chute is connected with a longitudinal strip or plate, F, which is, by means of swinging yokes *g* and wedges *h*, secured against the opening in the side of the case A.

By swinging aside the yokes the strip F, with its plate E, can, by means of handles *i*, be readily removed.

The other plate E′ slants off the inner face of the screen, and can be taken out by removing said screen.

The lower edges of both plates E E′ rest in grooved ribs *j j*, as shown, the said ribs forming V-shaped projections for protecting the plates and preventing them from "scouring."

The plates E E′ are held down by rubber pads K, that are secured in or to the inclined arms *l* of vertically-adjustable frames G, the said frames being arranged at the ends of the case, and connected at their upper ends to pivoted levers *m m*, by which the pads can be lifted off the plates.

Spring-catches *o* serve to hold the levers *m m* in the lowered positions.

The plates *c* in the chute are for protecting the arms *l*, frames G, and pads *k* from the ore.

That side of the case A which is above the chute is made in form of a removable plate, *n*, which is held in place by means of wedges and bolts. By its removal ready access can be had to the interior of the case.

The chute C is also made removable and secured in similar manner. The interior of the apparatus can thus be readily reached.

Similar devices heretofore made could not be opened at the sides, except by the removal of the screen, which is frequently insufficient to allow the clearing up and removal of broken dies, shoes, &c.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. The elastic pads *k k*, secured to the sliding frames G, and connected with the levers *m*, substantially as herein shown and described.

2. The chute C, having its inner side open and bottom inclined, and the plates *c c* combined as described with case A, for the purpose specified.

3. The plate E, combined as described, with strip F, yoke *g*, wedge *h*, and handle *i*, for the purpose of securing or detaching the said plate, as set forth.

LYMAN GRISWOLD.

Witnesses:

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