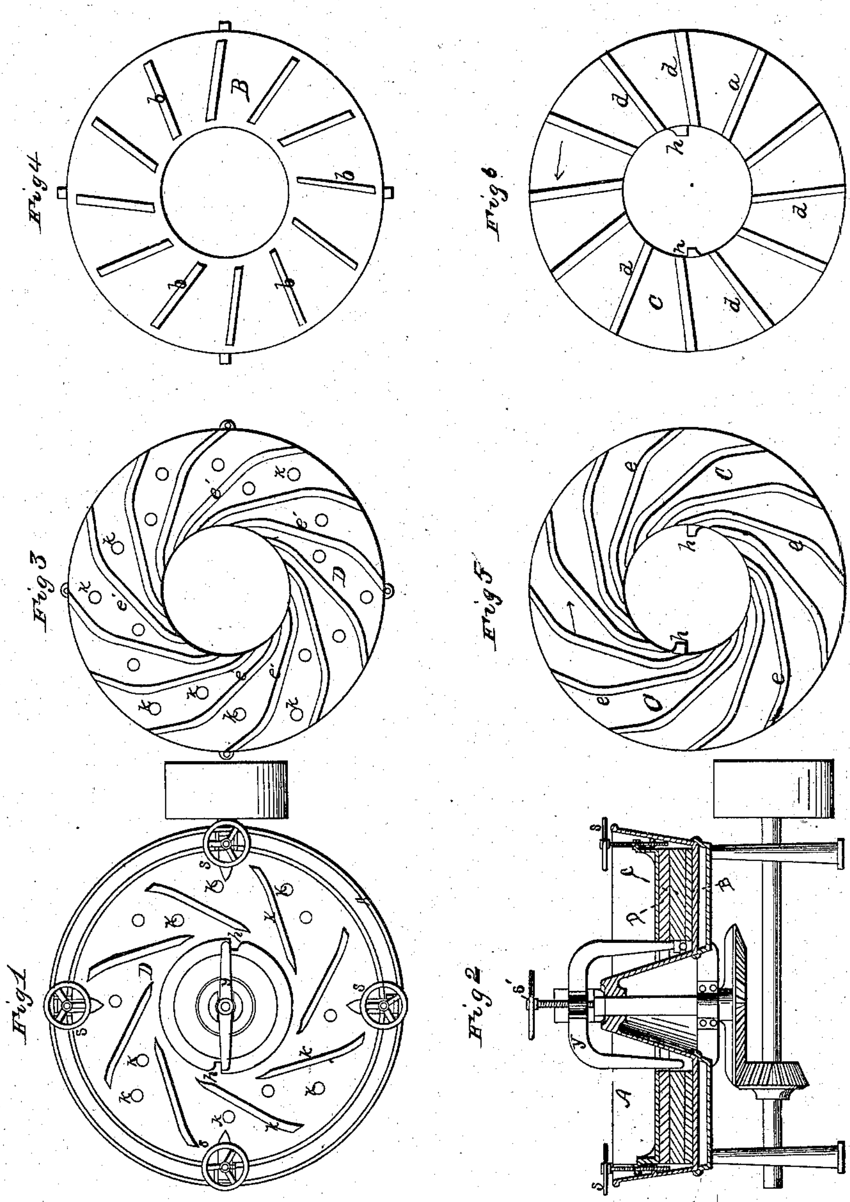
E. Coleman.

Ore Amalgamator.

No. 39,550. Patented Aug. 18, 1863.



Witnesses
Chas. [illegible]
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Inventor
Ezra Coleman

UNITED STATES PATENT OFFICE.

EZRA COLEMAN, OF SAN FRANCISCO, CALIFORNIA.

IMPROVED MACHINE FOR AMALGAMATING PRECIOUS METALS.

Specification forming part of Letters Patent No. **39,550**, da'ed August 18, 1863.

To all whom it may concern:

Be it known that I, EZRA COLEMAN, of the city and county of San Francisco, State of California, have invented new and useful Improvements in Amalgamators; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 is a top view of the machine. Fig. 2 is a vertical sectional view through the center. Fig. 3 represents the under or grinding surface of the top plate. Fig. 4 represents the upper or grinding surface of the bottom plate. Fig. 5 represents the top, and Fig. 6 the bottom, of the middle plate, both of which are grinding surfaces.

A represents an amalgamating-pan, such as is in common use.

B is the lower plate, which rests upon the bottom of the pan, and is provided with slots or holes *b* through the same to act as receptacles for quicksilver. This plate is so arranged as to be stationary upon the bottom of the pan.

C is the intermediate or grinding plate, the under surface of which is provided with grooves or gutters *d*, Fig. 6, and the upper surface with grooves or gutters *e*, Fig. 5.

h are lugs for attaching plate C to yoke *y* for the purpose of rotating the same.

D is the upper plate, used for its extra grinding-surface and for the purpose of regulating the agitation of the pulp, and is represented as being stationary.

s s are set-screws for regulating the distance of the plate D from the grinding-plate C, according to the condition of the pulp which is being ground.

e' are grooves upon the under surface of plate D, the curvatures of which, when faced with the upper surface of the intermediate or grinding plate, have an opposite direction from those of said grinding-plate.

k k are holes or slots through the upper plate, and may be closed when the proper agitation of the pulp requires. The upper plate may be made either with or without the grooves or gutters *e'*, or with or without the slots or holes *k k*, according to the fineness required for the pulp and to the amount of agitation which may be necessary in order for the thorough amalgamation of the same.

s' is a set-screw for regulating the position of the intermediate or grinding plate.

The arrangement of gearing and shafting for revolving the intermediate or grinding plate, also for revolving the top plate, when required, must vary according to the construction of the pan to which these improvements are applied.

Operation: The foregoing description of my invention precludes the necessity of any particular explanation as to its mode of operation, as that will be readily understood by parties familiar with quartz machinery. It may, however, be well to state that the intermediate plate or grinder C, having two grinding-surfaces, will reduce the rock to a much finer pulp and in greater quantity in proportion to the time and power employed than any amalgamator now in use. The stationary top-plate, D, will allow the grinder C to be run at a high speed without too much agitation of the pulp, which is a desideratum of great importance.

I do not claim grinding plates of iron with grooves or gutters therein, nor with slots or holes through the same. Neither do I claim any particular form of groove or gutter.

What I claim as my invention, and for which I desire Letters Patent to issue, is—

1. The use, in amalgamating-pans, of a plate with grinding-surfaces top and bottom, said plate revolving between two other plates.

2. The use of a top plate, D, in amalgamating-pans, for the purpose of regulating the agitation of the pulp, the whole substantially as described, and for the uses and purposes as hereinbefore set forth.

EZRA COLEMAN.

Witnesses:
CHAS. R. BOND,
WILFRED W. WIGGINS.