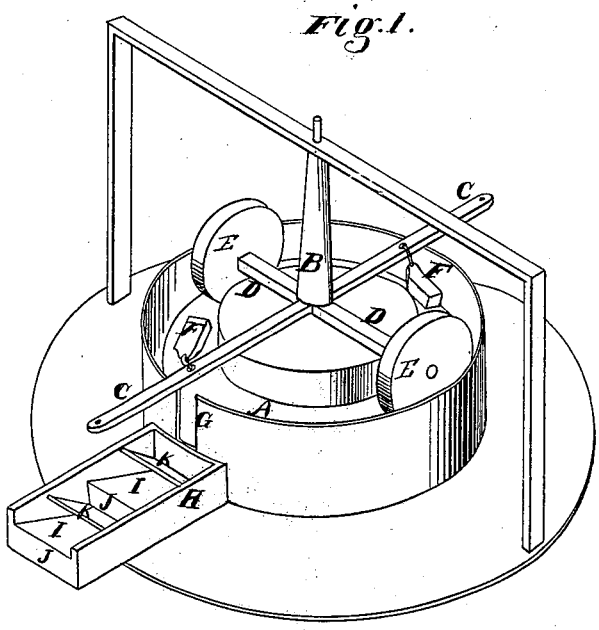
C. BRAIDS.

Ore Crusher and Amalgamator.

No. 167,638. Patented Sept. 14, 1875.

Fig. 1.




Witnesses

Geo. H. Strong.

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# UNITED STATES PATENT OFFICE.

CHARLES BRAIDS, OF COPPEROPOLIS, CALIFORNIA.

## IMPROVEMENT IN ORE CRUSHERS AND AMALGAMATORS.

Specification forming part of Letters Patent No. **167,638**, dated September 14, 1875; application filed March 10, 1875.

*To all whom it may concern:*

Be it known that I, CHARLES BRAIDS, of Copperopolis, Calaveras county, State of California, have invented an Ore Crusher, Grinder, and Amalgamator; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention without further invention or experiment.

My invention relates to certain improvements in crushing, grinding, and amalgamating ores; and it consists, principally, in the combination of crushing-wheels with a series of drags within a circular track. From this track the pulverized ore is carried into a flume or sluice-box containing a series of peculiarly-constructed riffles, where it is amalgamated.

Referring to the accompanying drawing for a more complete explanation of my invention, Figure 1 is a perspective view of my device.

A is a circular grinding-track, with a suitable surface for the purpose, and made of large diameter. A vertical shaft, B, stands in the center of the elevation, within the circle of the track, and to the lower end of this are attached the arms C for the attachment of animals for driving the machine. To the ends of the arms D are attached the crushing-wheels E, which rotate within the track as the arms are driven around. To the arms C I attach the heavy weights or drags F, which are thus made to follow the rollers around; and by this combination of rollers and drags I am enabled to crush and pulverize the ore to the required degree of fineness.

I am aware that rollers and drags are each, of themselves, old, but it is evident from my construction that the combination of the drags with the rollers reaches a new and useful result, as the drags, following in the rear of each roller, stir up the crushed material and continuously present a new surface for the following roller to act upon.

An opening is made at G in the side of the outer rim of the pan which incloses the track, and provided with a suitable screen, through which the pulp passes as fast as it becomes fine enough. This pulp, together with sufficient water, is carried by a trough or pipe to the sluice-box H, into which it falls and passes over the peculiarly-constructed riffles which I use. These riffles consist of inclined planes I, which I find to be very suitable when made about four feet long by about one foot wide, and having a rise of about one inch to the foot. From the top of each incline the water and pulp fall down the abrupt face J to the foot of the next plane, and thus throughout any number of planes.

The mercury for amalgamation is placed in the space at the foot of each plane, and is partially retained by means of the inclines; but the falling of the water into these spaces, as above described, is apt to carry some of the valuable metal up the inclines, and it will eventually pass out from the sluice and be lost. In order to prevent this I employ the plates K, which are placed across the flumes and stand at an angle, their upper edges being advanced beyond the lower edges, as shown. These plates are so placed that the water and pulp fall from the top of each incline into a space between the face J and the plate, and all eddies, currents, and splashing take place within this space. From this the pulp is forced down through the mercury, into which the edge of the plate just dips, and then flows gently up the incline, with no tendency to carry off mercury or amalgam; and by this device I save so closely that I am unable to find any traces of mercury or gold in the tailings below my sluice.

The sluice may be placed close against the side of the grinder, or, as will be most convenient, it can be set at a short distance away and connected by a pipe or trough, so as to leave room for the horse which drives the crusher to pass easily.

Having thus described my invention, I do not claim separately either the use of wheels or rollers moving in a circular track, or the use of a weight or drag; but

What I do claim, and desire to secure by Letters Patent, is—

In combination with a circular track, A, two revolving bars, C D, arranged at right angles and bearing a pair of drag-weights, F F, and a pair of crushing-wheels, E E, as specified.

CHARLES BRAIDS.

Witnesses:

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