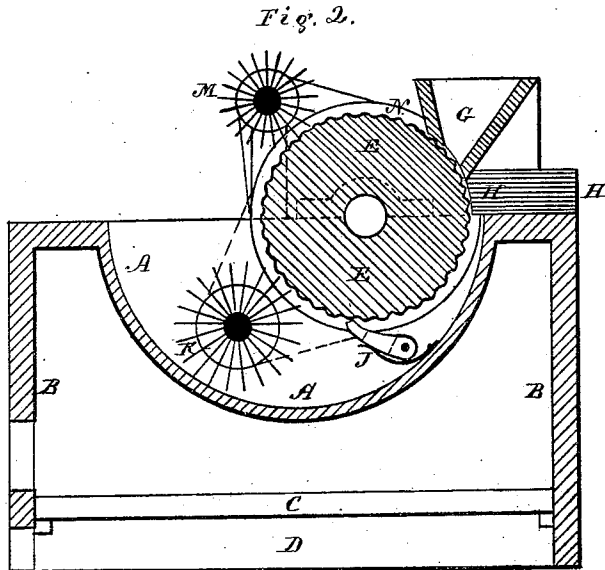
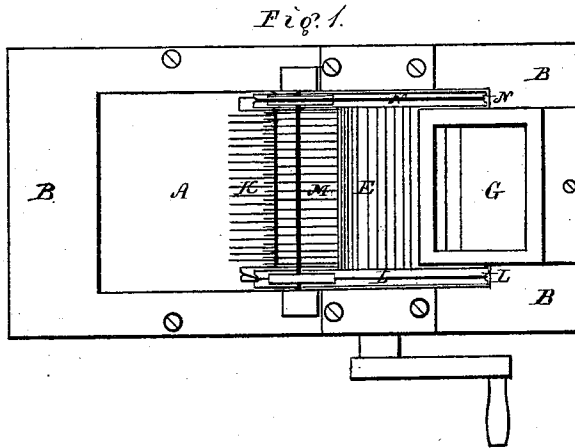


(No Model.)

W. M. FULLER.
APPARATUS FOR TREATING GOLD AND SILVER ORES.

No. 243,699.

Patented July 5, 1881.



Witnesses.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR TREATING GOLD AND SILVER ORES.

SPECIFICATION forming part of Letters Patent No. 243,699, dated July 5, 1881.

Application filed August 14, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLARD M. FULLER, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Apparatus for Treating Ores Containing Gold and Silver; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

My improvement relates to a new and useful apparatus for extracting the precious metals from auriferous and argentiferous ores, wherein the pulverized ores are passed through molten lead, by which the metal is dissolved and held in solution in the form of an alloy.

The object of my invention is to provide a cheaper and more effective separation of the metal from its gangue in certain kinds of ores than has heretofore been in use.

In the accompanying drawings, illustrating my invention, Figure 1 is a top view of my improved apparatus. Fig. 2 is a vertical longitudinal section of the same.

A is a pan for containing the molten lead.

B is a frame for supporting the pan, and forming a furnace beneath it for heating the lead.

C are the grate-bars, and D is the ash-pit, of the furnace.

E is a grooved cylinder, placed so as to be partly submerged in the molten lead, and supported upon the frame B on a shaft, to which a rotary motion is given by a crank or some other suitable mechanism.

G is a hopper for feeding the pulverized ore to the apparatus.

H is a cut-off plate, of sufficient thickness to extend across one or more of the grooves or corrugations upon the surface of the cylinder E, placed immediately below the hopper G. The purpose of this cut-off is to confine the ore in the grooves of the cylinder, and to thus

force the ore which enters the grooves from the hopper down into the molten lead as the cylinder revolves. The ore being of less specific gravity than the lead, it would otherwise float and not pass downward. The cut-off extends across the whole width of the cylinder, and comes nearly in contact with it.

J is a scraper, held by means of a spring or counterpoise-weight against the exterior surface of the grooved cylinder E. It serves to remove the ore from the grooves.

K is a revolving brush, having bearings in the sides of the pan A. It serves to sweep the grooves clean and to mix the particles of ore intimately with the lead, so that each particle is brought in contact with the lead and forms an alloy with it. This brush is driven by means of a wire cord or other suitable belt from the pulley L upon the end of the cylinder E.

M is a revolving brush situated near the top of the cylinder E. It serves the purpose of sweeping out the grooves of the cylinder and preventing any particles of ore from passing over the top and being carried round a second time. This brush is driven by a similar belt to that for the brush K from the pulley N upon the opposite end of the cylinder E.

The brushes K and M may be made of metallic wire or any other suitable material that will resist the action of the molten lead.

The operation of my invention is as follows: Lead is placed in the pan and melted by means of the furnace below. Pulverized ore is placed in the hopper, which is revolved so as to pass successive charges down into the molten lead as each groove passes the cut-off, the cut-off, extending across one groove or more, preventing any reflux of the ore. The ore passes down and is thoroughly mixed with the lead by means of the scraper and lower brush, the upper brush keeping any ore or lead from passing back over the top of the cylinder. When the lead becomes sufficiently charged with the precious metal it is drawn off to be cupelled or otherwise separated, and the pan is recharged with lead.

What I claim as my invention is—

1. The combination of the grooved cylinder E, the hopper G, and the cut-off H, substantially as and for the purpose described.

2. The scraper J, in combination with the 5 grooved cylinder E, and the pan A, adapted to contain molten lead, substantially as described.

3. The revolving brush K, in combination with the grooved cylinder E, and the pan A, adapted to contain molten lead, substantially 10 as described.

4. The combination of the scraper J with the cylinder E, whereby the ore is distributed

in the molten lead within the pan A, substantially as described.

5. The combination of a feeding mechanism, 15 G H, a revolving grooved cylinder, E, and a distributing mechanism, J K, with the pan A, containing molten lead, substantially as described.

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Witnesses:

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