

(No Model.)

J. H. HAWTHORNTHWAITES.
AMALGAMATOR.

No. 469,566.

Patented Feb. 23, 1892.

Fig. 1.

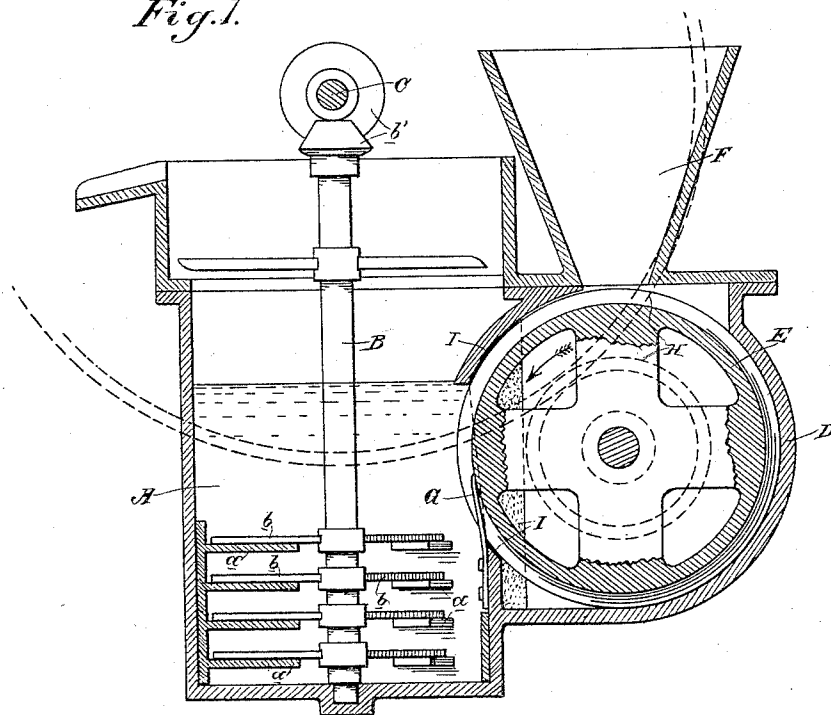


Fig. 2.

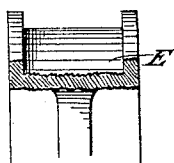
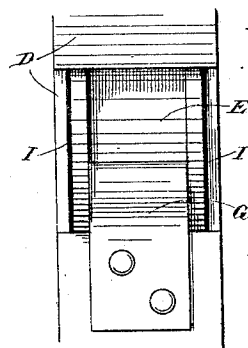


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES H. HAWTHORNTHWAIT, OF SAN FRANCISCO, CALIFORNIA.

AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 469,566, dated February 23, 1892.

Application filed April 13, 1891. Serial No. 388,773. (No model.)

To all whom it may concern:

Be it known that I, JAMES HURST HAWTHORNTHWAIT, a citizen of England, residing in the city and county of San Francisco, State of California, have invented an Improvement in Amalgamators; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of amalgamators in which the ore is delivered into a body of liquid metal; and it consists in the novel feeding mechanism hereinafter fully described, and specifically pointed out in the claim.

The liquid metals usually employed in this class of amalgamators are quicksilver and molten lead. The specific gravity of these is so much greater than that of the ore that great difficulty is found in introducing the latter, as the ore must be fed to the metal bath below in order that it may rise through it. Consequently screws and chains and belts and wheels have been used in various forms to effect the result.

The object of my invention is to provide a simple and effective feeding mechanism of the wheel type.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a vertical section of my amalgamator. Fig. 2 is a detail view of a portion of the wheel-rim. Fig. 3 is a face view of the wheel, showing the packing forming its joint with the metal-bath chamber.

A is the chamber which contains the metal bath, usually quicksilver. In this is a shaft B, with stirrers *b* operating over arms *a* in the chamber, said shaft being driven by bevel-gearing *b'* above from a power-shaft C.

D is the feed-wheel casing on the side of chamber A, and E is the feed-wheel. This wheel has a flanged or grooved form, as shown in Fig. 2. The casing where it joins the chamber communicates with it, and consequently the rim of the wheel at that point is exposed to the chamber.

F is a feed-hopper above and communicating with casing D. It is adapted to discharge the ore into the grooved rim of the wheel. Within the chamber, at the point where the

feed-wheel leaves it, is a fixed scraper G, tangential to the wheel-rim, and which extends into the grooved rim of the wheel. The wheel is driven by means of gearing H from the power-shaft.

I represents suitable packing to prevent the liquid metal from getting into the wheel-casing.

The operation of the machine is as follows: The wheel revolves in the direction shown by the arrow in Fig. 1. The ore is fed to its grooved rim from hopper F, and is by the said rim carried downwardly. When the ore is exposed to the quicksilver, it does not fall out of the wheel-rim, but is held therein by the quicksilver bearing upon it, which acts as a band or cover retaining the ore in place. This retention is sufficient to enable the wheel to carry the ore down until it meets the scraper G, which positively forces it out from the rim into the quicksilver. Once in the bath the operation is similar to other machines of this class.

This feed mechanism is simple and positive, carrying the ore effectively down and delivering it within the liquid bath.

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

In an amalgamator, and in combination with the vertical chamber containing the liquid bath and having the exterior casing communicating with it through an aperture in its side, the vertically-rotating wheel within the casing, having a grooved rim exposed during a portion of its revolution through the chamber side to the liquid therein, a hopper feeding the ore to the grooved rim of its wheel, and the fixed scraper in the liquid-chamber tangential to and acting within the grooved rim of the wheel at the point where said rim leaves the chamber, substantially as herein described.

In witness whereof I have hereunto set my hand.

JAMES H. HAWTHORNTHWAIT.

Witnesses:

S. H. NOURSE,
J. A. BAYLESS.