(No Model.)

A. D. CLARKE.

CENTRIFUGAL ORE CONCENTRATOR.

No. 260,453. Patented July 4, 1882.

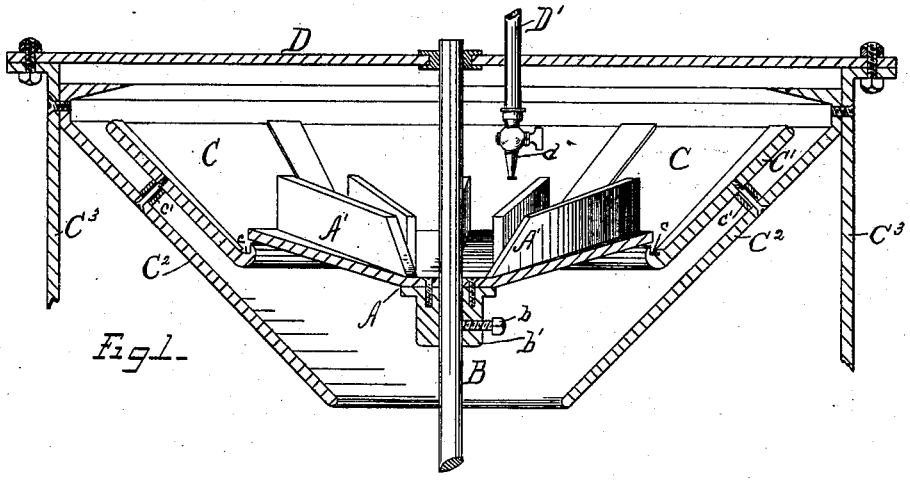

Fig 1.

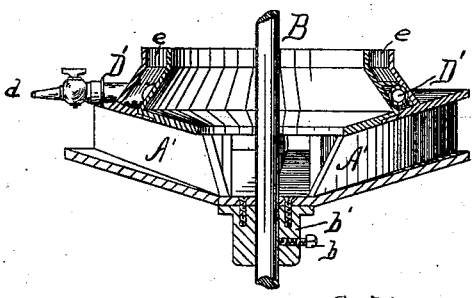

Fig 2.

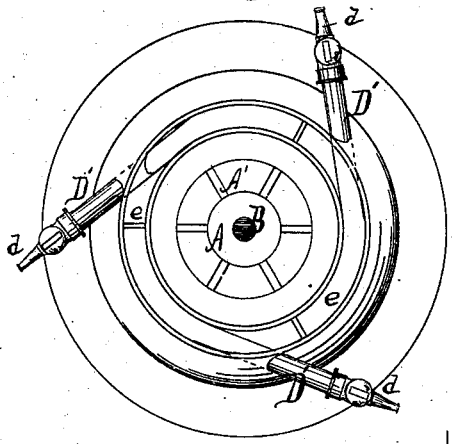

Fig 3.

WITNESSES.
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UNITED STATES PATENT OFFICE.

ALEXANDER D. CLARKE, OF OMAHA, NEBRASKA.

CENTRIFUGAL ORE-CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 260,453, dated July 4, 1882.

Application filed February 4, 1882. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER D. CLARKE, of Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Centrifugal Ore-Concentrators, of which the following is a specification.

This invention is a modification of the centrifugal concentrating devices shown in patents to me of September 27 and November 20, 1881. In both said patents I have illustrated a centrifugal concentrating-wheel surrounded by stationary inclined amalgam plates; but in neither of them have I shown any means whereby said surrounding plates may be kept freshly amalgamated.

In this class of machines it is desirable that this be done, as it saves frequent removals of said plates and renders them more efficient, and the invention is designed to accomplish the operation automatically. The means devised consist in providing the wheels with mercury-reservoirs having discharge-openings regulated by valves, so that the mercury from the reservoirs may be thrown by the wheels upon the plates at frequent or stated intervals, as hereinafter stated.

In the accompanying drawings, Figure 1 is a vertical section of the wheel and its surrounding parts, showing one way in which my invention may be practiced. Fig. 2 is a like section of a wheel, showing the invention in a modified form; and Fig. 3 is a plan of the wheel shown in Fig. 2.

Similar letters indicate like parts.

In said drawings, A represents the wheel, and it may be provided with wings A′ upon its upper surface. It is secured to, so as to be supported and rotated by, the shaft B by the set-screw *b* and hub *b′*. C C are the surrounding inclined amalgam plates resting upon an annular shell, C′, which is in turn supported at a little distance above by a concentric outer shell, C^2. C^3 indicates the vertical supporting-frame, *c* the collecting-gutters at the foot of the shell C′, and *c′* the devices for holding said shell C′ at the proper remove from the outer shell, C^2. All these parts may be similar in construction to the corresponding parts in my said former patents.

To the stationary cross-brace D, above the wheel, I secure a mercury-reservoir, D′, provided at its bottom with a discharge-cock, *d*. By opening this discharge as much mercury may be introduced into the wheel from time to time as may be needed to keep the surrounding copper plates constantly freshly amalgamated, and the mercury so fed will be thrown by the wheel onto the plates. This discharge of the mercury may be intermittent or continuous, as desired. Both sand and mercury may thus be given the same angle of incidence, and the former be caused to strike a fresh surface at all times.

In the modification shown in Figs. 2 and 3 one or more mercury-reservoirs, D′, are mounted upon the wheel, and, being provided with like discharge-cock *d*, they distribute the mercury directly to the copper plates in the quantity desired as the wheel revolves.

The reservoirs may be inserted in the annular trough *e* upon the wheel, or otherwise held thereon. The form of the reservoir and the manner of securing it to the wheel are, however, quite immaterial.

I contemplate utilizing the trough *e* as a reservoir, and to discharge the mercury therefrom through short tubes, like the outer ends of the reservoirs D′ in Figs. 2 and 3. This will enable me to collect the mercury drippings from an upper wheel in the manner pointed out in my said patent of November 20, 1881.

In the modified forms of the apparatus it will be understood that the copper plates are used with the wheel as in Fig. 1.

Instead of regulating the flow of the mercury wholly by the discharge-cocks, porous diaphragms of wood or other suitable material of the required density may be placed over the discharge-openings of the reservoirs and the feed be through the pores of such diaphragms. A slow and steady feed may be obtained in this way.

It will be obvious that as many of these wheels and amalgamating devices may be used in series as may be deemed desirable, so that the operation will be repeated as often as any ore remains uncollected.

I claim—

The combination, with the centrifugal concentrating-wheel and its surrounding amalgam plates, of one or more mercury-reservoirs having regulable discharge-openings, substantially as specified, whereby the supply of mercury may be graduated or otherwise regulated at will.

ALEXANDER D. CLARKE.

Witnesses:

H. M. MUNDAY,

T. EVERETT BROWN.