

No. 613,718.

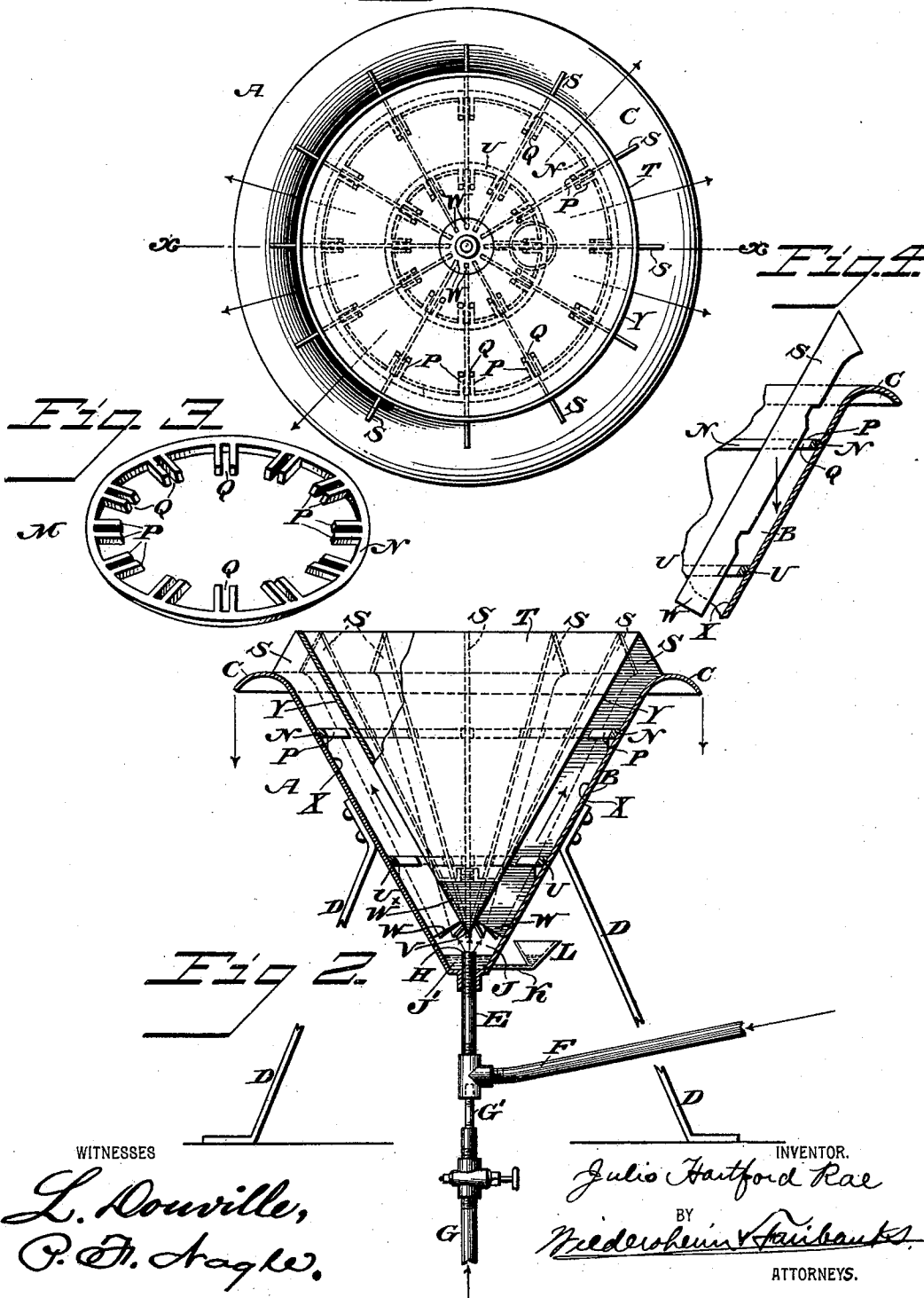
Patented Nov. 8, 1898.

J. H. RAE.
AMALGAMATOR AND DISTRIBUTER.

(Application filed Oct. 21, 1897.)

(No Model.)

Fig. 1.



UNITED STATES PATENT OFFICE.

JULIO HARTFORD RAE, OF PHILADELPHIA, PENNSYLVANIA.

AMALGAMATOR AND DISTRIBUTER.

SPECIFICATION forming part of Letters Patent No. 613,718, dated November 8, 1898.

Application filed October 21, 1897. Serial No. 655,903. (No model.)

To all whom it may concern:

Be it known that I, JULIO HARTFORD RAE, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Amalgamators and Distributers, which improvement is set forth in the following specification and accompanying drawings.

My invention consists of an improved construction of amalgamator and distributor by which I am enabled to more readily separate the valuable constituents of pulp or crushed ore, &c., than heretofore and at a minimum cost.

It further consists of novel details of construction, all as will be hereinafter fully set forth, and particularly pointed out in the claims.

Figure 1 represents a plan view of an amalgamator and distributor embodying my invention. Fig. 2 represents a vertical section on line *xx*, Fig. 1, certain portions of the latter figure being shown in elevation. Fig. 3 represents a perspective view of a supporting-ring employed, said ring being shown in detached position. Fig. 4 represents a vertical section through Fig. 1, showing the manner of assembling the different parts of my invention.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates an amalgamator and distributor, the same consisting of the inverted conical or similar shaped vessel or cone B, which latter has at its upper portion the outwardly-flaring annular lip C, said vessel B being mounted on suitable supports D or sustained in any other convenient manner.

E designates a feed-pipe entering the lower portion of the cone B, at or near the apex thereof, said feed-pipe having a pipe F leading thereinto, into which the pulp is directed, said pulp consisting of crushed ore, sand, iron, and water or similar ingredients, from which the precious or valuable metals are extracted by my invention.

G designates a water-pipe leading into the pipe E at or near the junction of the latter with the pipe F, said pipe G having a nipple G' attached thereto, which discharges in the

present instance into the fitting to which the pipe F leads, said nipple G' thus having the function of an injector, it being evident that the functions of said pipes F and E can be interchanged, the pulp being introduced through the pipe G and the water through the pipe F, if desired.

The upper extremity H of the pipe E is extended into the chamber J at the lower portion of the cone B, so as to form a receptacle J' for the quicksilver, &c., said quicksilver being conducted through the tube K to the funnel or other shaped receptacle L, from which latter it can be readily removed.

M designates the retaining device for the inner cone T, the same consisting of the ring N, having the lugs P, projecting inwardly therefrom, so as to form recesses Q, in which latter are seated the blades S, which are attached to the inner cone T and extend radially therefrom, the lower portion of said blades being supported upon a lower ring U, which is substantially the same as the ring N seen in Fig. 3, but of less diameter. The said blades are provided with the recesses S', which form shoulders S², adapted to contact with and support the inner cone on the circumferential portions of the rings.

The rings N and U may be supported upon lugs on the inner periphery of the cone B, or said lugs and rings may be dispensed with, as also the plates or blades S, and the inner cone T sustained or suspended within the outer cone or by any other desired or suitable means, it being also apparent that the feed-pipes F or G may be introduced into the top or side of the amalgamator, if so desired, although in practice I prefer the construction seen in Fig. 2, in which the feed-pipe E is shown as discharging in proximity to the apex V of the inner cone, while the lower extremities W of the plates or blades S terminate at or near said apex V and a short distance above the extremity H of said feed-pipe A.

The operation is as follows: The inner face X of the outer cone and the outer face Y of the inner cone are preferably silver-plated or coated with quicksilver, and it will be apparent that when the crushed ore or pulp, consisting of sand, iron, water, &c., is forced into the pipe F the water entering the pipe E through the nipple G' will tend to act as an

injector and the commingled water and pulp will be forced against the apex V and the lower extremities of the blades or plates F. The commingled water or pulp being divided
 5 or segregated into a plurality of streams the sand and water will run off the lip C, while the gold, silver, quicksilver, and other precious metals adhere to the surfaces X and Y of the inner and outer cones, the quicksilver falling
 10 into the chamber J and being readily removed through the receptacle L, as has been explained.

It will be evident that although I have referred to the vessels B and C as being of conical shape or cones the same may be constructed of any similar shape, such as an inverted pyramid or any other similar figure having a polygonal base, without departing from the spirit of my invention.

20 In the preferred embodiment of my invention I make the apex W^x of the inner cone removable, as indicated in Fig. 2, whereby when said apex becomes worn or damaged it can be readily replaced.

25 It will of course be evident that the quicksilver, &c., settling in the outer cone can be removed by any other means than the tube K and the receptacle L without departing from the spirit of my invention.

30 The precious metals adhering to the surfaces X and Y of the inner and outer cones can be readily removed therefrom by lifting the inner cone away from the exterior cone.

It will be evident that air may be forced
 35 through the pipe G in place of water, and it will be found that under certain conditions it will be unnecessary to force a fluid through the said pipe G, in which case I close a cock which is provided for that purpose.

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

1. In an amalgamator, an inner and an outer stationary vessel, separating-rings supported on the inner periphery of said outer
 45 vessel and provided with blades held therein, said blades extending radially from said inner vessel and supported on said rings, a supply-pipe leading into the lower end of said outer vessel and a force-pipe leading into said supply-pipe.

2. In an amalgamator, an inner and an outer vessel, separating-rings with inwardly-projecting lugs, blades adjacent to said inner vessel and held between said lugs, means on
 55 said outer vessel by which said rings are supported, a supply-pipe leading into said outer vessel and a force-pipe leading into said supply-pipe.

3. In an amalgamator, inner and outer vessels, separating-blades with supporting-rings, a pulp-supply pipe leading into and projecting above the bottom of said outer vessel and a pipe leading from said outer vessel with a receptacle at the outer end thereof.
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4. In an amalgamator, an inner and an outer conical vessel, the latter having lugs on its inner face, rings supported on said lugs, blades adjacent to said inner vessel and held in recesses on said rings forming pulp-passages between said vessels, a supply-pipe leading into the lower end of said outer vessel and communicating with said pulp-passages, and a force-pipe leading into said supply-pipe, said blades having recesses therein
 75 forming shoulders, resting on said ring.

5. In an amalgamator, an inner and an outer vessel, rings supported on the inner periphery of said outer vessel, blades adjacent to said inner vessel and supported upon said
 80 rings, whereby diverging passages are formed extending upwardly from the lower portion of the amalgamator, a removable apex or point for the lower portion of said inner vessel, and a supply-pipe leading into the lower
 85 portion of said outer vessel.

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Witnesses:

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