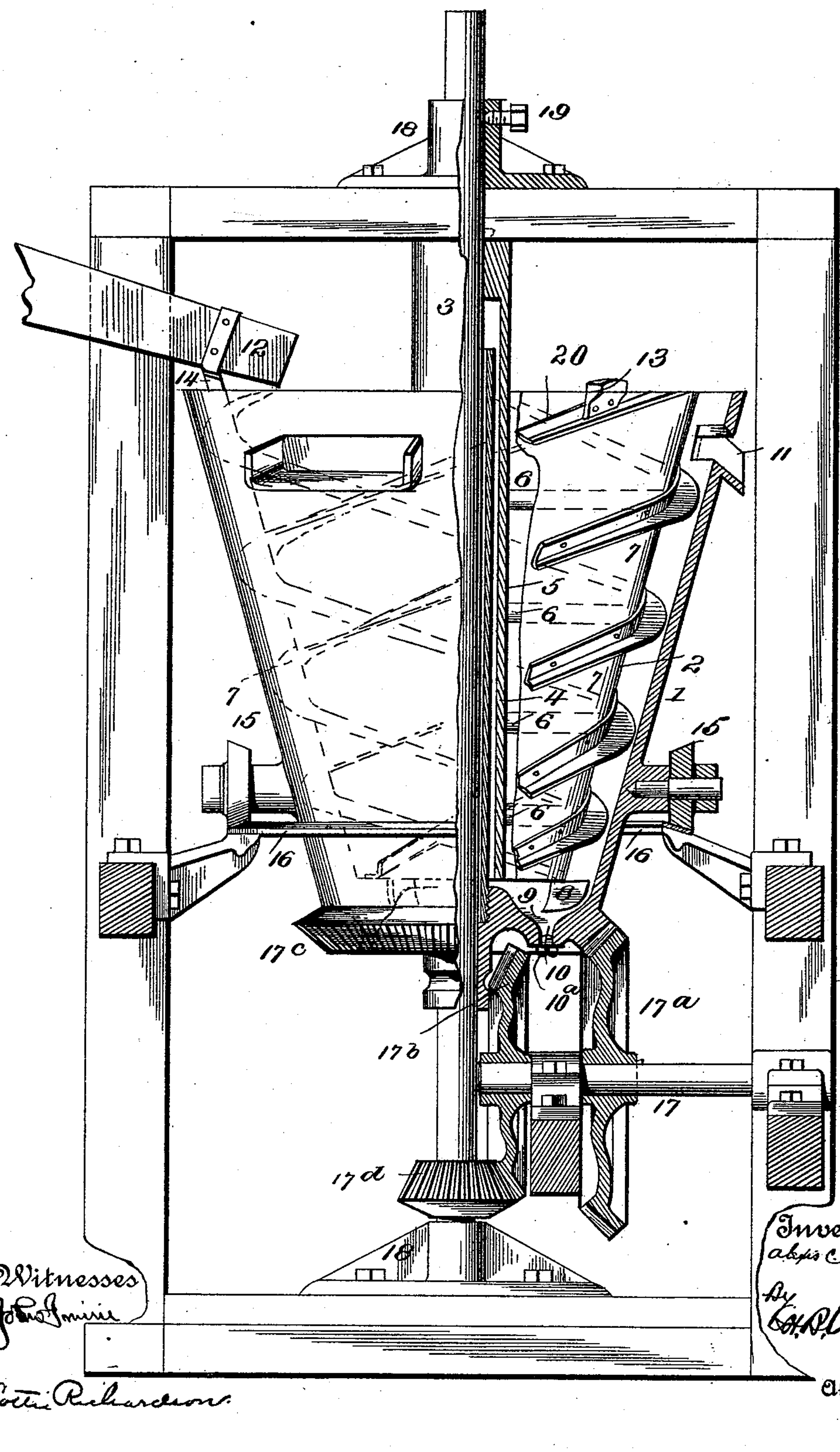
(No Model.)

A. C. McDONALD.

AMALGAMATOR.

No. 525,352. Patented Sept. 4, 1894.



Witnesses
John Imrie
Lottie Richardson

Inventor
Alexis C. McDonald
By
C. H. Willson
Attorney

UNITED STATES PATENT OFFICE.

ALEXIS C. McDONALD, OF GRANITE, MONTANA.

AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 525,352, dated September 4, 1894.

Application filed May 17, 1894. Serial No. 511,609. (No model.)

To all whom it may concern:

Be it known that I, ALEXIS C. McDONALD, a citizen of the United States, residing at Granite, in the county of Granite and State of Montana, have invented certain new and useful Improvements in Amalgamators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in amalgamators especially adapted for treating or washing gold and it has for its object to secure that end in an efficient and expeditious manner with simple and readily actuated apparatus, and it consists of the combination and arrangement of the parts substantially as hereinafter more fully disclosed and pointed out in the claims.

The figure is an elevation and partly sectional view of my amalgamator.

In carrying out my invention I employ an outside inverted cone-shaped receptacle 1 whose bottom is the quicksilver or mercury chamber 9 and which is provided with amalgam-discharge openings or outlets 10 fitted with screw-plugs 10^a. Within this receptacle and intact therewith, is arranged a second bottomless correspondingly-shaped receptacle 2 with its lower end some distance above the bottom of the outer receptacle and compassed by spiral or serpentine conveyers 7, in cross-section, fitting snugly the intervening space between said receptacles, to elevate and discharge the water assisted by centrifugal action of the two receptacles said conveyers each having at its lower end an agitator 8 to enter and keep the quicksilver in motion. The outer receptacle 1 is carried by a vertical shaft 3 passing therethrough and suitably supported above and below in bearings 18, the upper bearing having its sleeve or tubular portion provided with a set-screw 19 engaging said shaft.

The outer receptacle 1 has a number of waste-outlets 11, and has on its upper edge a projection or knocker 13 to engage a pendant 14 on the feed chute 12 to agitate the chute and thus aid the feeding of the gold or precious ore into the inner receptacle for washing or treatment.

The inner receptacle 2 is connected to a sleeve or tube 5 compassing the shaft 3 and resting on the bottom of the receptacle 1, by arms 6 secured at its ends to said receptacle and tube, respectively. The inner and outer receptacles 1 and 2 are rotated or driven in opposite directions and at different velocities, the outer one at say forty revolutions and the inner one at say thirty revolutions, per minute, by a shaft 17 suitably supported and journaled in position and carrying two different diametered, beveled cog-wheels 17^a and 17^b geared to a beveled cogged surface 17^c on the bottom of the receptacle 1 and a small beveled cog-wheel 17^d on the shaft 3, respectively. The outer receptacle also carries two beveled guide rollers 15 traveling on a circular track 16, suitably supported in position as shown, to render the motion of said receptacle steady.

It will be seen that the amalgamator thus constructed is expeditious and efficient in action, and is simple and has a maximum capacity for work.

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

1. In an amalgamator, the combination of the two oppositely revolving and differently speeded cone-shaped receptacles, one having spiral elevators arranged between the two receptacles to elevate or discharge the water substantially as set forth.

2. In an amalgamator, the combination of an inner and outer cone-shaped receptacle, the inner one having spiral elevators arranged between the two receptacles and their lower ends carrying agitators dipping into the mercury and keeping it in motion, substantially as set forth.

3. In an amalgamator, the combination of the outer and inner cone-shaped receptacles one carried by a central shaft and the other being bottomless and having its lower end some distance above the bottom of the aforesaid receptacle and said inner receptacle being connected by arms to a tube or sleeve resting upon the bottom of said outer receptacle, substantially as set forth.

4. In an amalgamator, the combination of the outer cone shaped receptacle carrying

steadying rollers traveling on a circular track, a knocker or projection engaging a pendant on the feed-chute, and having a mercury or quicksilver chamber in its bottom, and an inner cone-shaped receptacle having spiral conveyers or elevators arranged between said receptacles and carrying agitators for the mercury in the outer receptacle, and gearing for driving and speeding said receptacles at different rates, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALEXIS C. McDONALD.

Witnesses:
ANDY McMILLEN,
J. E. PADDY.