

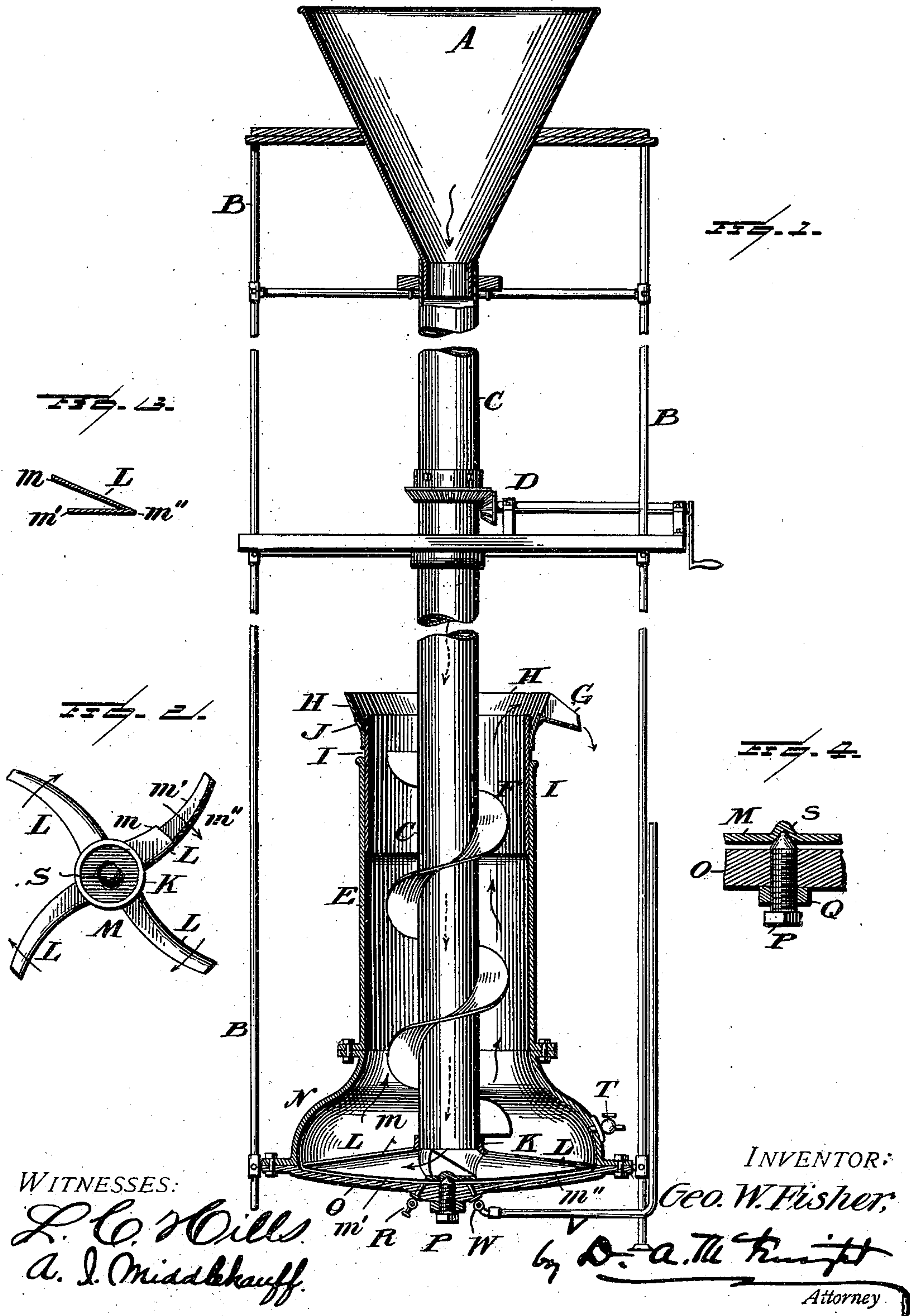
No. 665,418.

Patented Jan. 8, 1901.

G. W. FISHER.  
AMALGAMATOR.

(Application filed Sept. 11, 1900.)

(No Model.)





# UNITED STATES PATENT OFFICE.

GEORGE W. FISHER, OF LOUISVILLE, KENTUCKY, ASSIGNOR OF ONE-HALF  
TO CHARLES A. GOULD AND A. LEONARD GOULD, OF CHICAGO, ILLINOIS.

## AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 665,418, dated January 8, 1901.

Application filed September 11, 1900. Serial No. 29,667. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. FISHER, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Amalgamators; and I do hereby 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 amalgamators; and it consists in the improved construction and arrangement of the several parts hereinafter described and claimed.

In the several figures of the drawings similar letters indicate similar parts of the machine.

Figure 1 is a front elevation of my amalgamator and, in part, of the frame supporting it, showing the amalgamating vessel in vertical section. Fig. 2 is a plan view of the armed agitating-wheel, the top leaf of one of the hollow arms being broken away. Fig. 3 is a cross-section of one of the agitating-arms. Fig. 4 is an enlarged sectional view of the pivot supporting the revolving arms and supply-tube.

B is a frame, made of any suitable material, for supporting the various parts of the machine. It is preferably made of gas pipe and fittings, so arranged as to be readily taken apart and packed for convenient transportation.

A is a funnel carried by frame B, its lower end extending into tube C, and into it is fed the metal-bearing pulp.

C is a revolving supply-tube, and M the agitating armed wheel, surmounted by the flange K, by which it is securely attached to the bottom of tube C, the combined tube and wheel being supported by pivot P. Pivot P is shown as a set-screw, passing through the bottom of the amalgamating vessel, whereby the tube and wheel may be raised and lowered when desired.

N is the amalgamating-bowl, having the concave bottom O, in which a suitable quantity of mercury is placed, and wheel M is so arranged as to be submerged in the mercury.

D represents the driving mechanism for revolving the tube and wheel, which is of any suitable form and kind, either hand or power.

To the top of amalgamating-bowl N is attached casing E, and within casing E is the telescopic extension-casing I, adapted to be raised or lowered, as demanded, by the weight of the sand or pressure of water. Extension-casing I has a flaring top H, in one part of which is located spout G, and top H and casing I are so constructed as to leave a valley J around the casing, adapted to catch any particles of mercury or gold that may rise with the tailings.

F is a screw conveyer surrounding tube C, whose function is to aid in the removal of the tailings.

R is a cock through which the amalgam and mercury may be discharged.

T is a cock through which the water and sand may be drawn off when required.

W is a cock to which pipe V is attached, whereby the necessary chemicals may be introduced into the amalgamating vessel below the mercury for the purpose of purifying it.

Agitating-wheel M consists usually of four hollow arms L, connected at the top with flange K and united together at the bottom in the center of the wheel, as more particularly shown in Fig. 2, my preferred way of making the wheel at present being to cast it in one piece. Arms L are wedge-shaped, hollow, and open at the rear, as shown in cross-section in Fig. 3, the thin edge *m''* being the forward side of the arms when revolving. They are laterally curved, as shown in Fig. 2, with the convexity on the forward side, and have a convex under side conforming to the shape of the bottom O of bowl N. The objects and purposes of the shape of arms L and bottom O, just described, are, first, that the arms shall lie just as closely to the bottom as possible, leaving below but a thin layer of mercury just sufficient to form the amalgam, the set-screw P elevating them as the amalgam increases; second, that the arms by reason of their cutting edges shall lift the mercury as they revolve without causing it to rotate, and thus compel the rising pulp to pass through the entire mass; third, that the depth of the mercury shall be proportioned to the thickness of the outflowing pulp, which will be greater near the center of the agitating-wheel, and, fourth, that the outflowing

pulp will be carried to the extremities of the arms.

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

5 Patent, is—

1. An amalgamator, consisting essentially of a supporting-frame, a bowl with a concave bottom, an agitating-wheel running close to said bottom, said wheel having hollow arms  
10 joined at their center, and presenting sharp front edges in the direction of movement and being open at the rear sides or edges, a vertical tube supported by the frame, rigid with said arms and communicating with the hol-  
15 low portions thereof, and means for rotating said tube and arms, all combined, substantially as described.

2. In combination, an amalgamating vessel, a revolving supply-tube, an adjustable  
20 supporting-pivot, and an agitating-wheel hav-

ing hollow curved wedge-shaped arms, the rear side of the arms being open and the convex lateral curve and the cutting edge being on the forward lower side, substantially as described.

3. In an amalgamator, the combination of  
25 a concave bowl having an upwardly-extending casing, an extension-section telescopically connected to said casing and having a flaring top and a spout, and a supply-tube journaled  
30 within the casing provided with a hollow-armed agitating-wheel at the bottom, and connected to said supply-tube, all substantially as described.

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

GEORGE W. FISHER.

Witnesses:

APPLETON P. CLARK,  
D. A. MCKNIGHT.