

No. 694,203.

Patented Feb. 25, 1902.

G. C. SCOTT.
AMALGAMATING MACHINE.

(Application filed May 20, 1901.)

(No Model.)

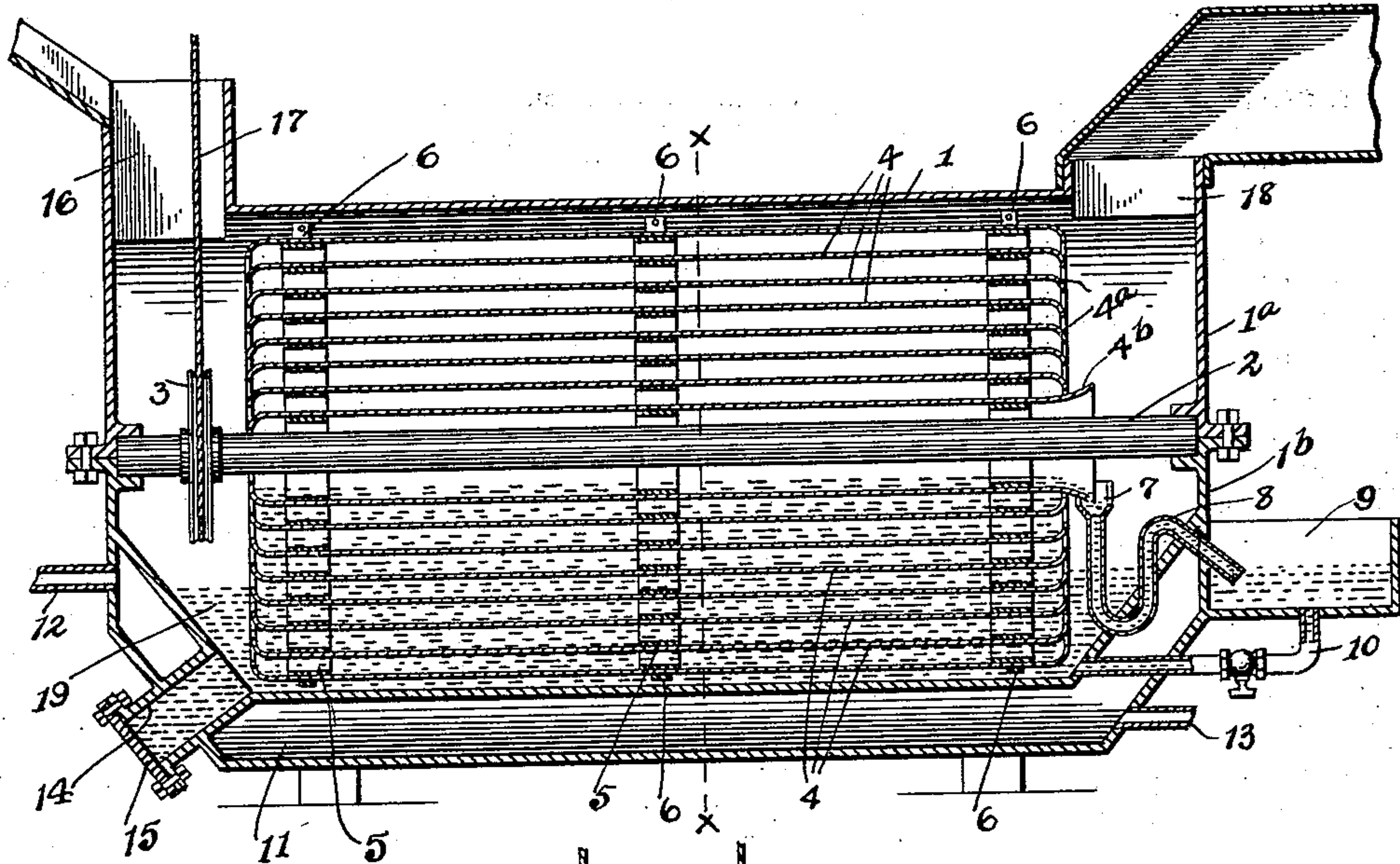


Fig. 1.

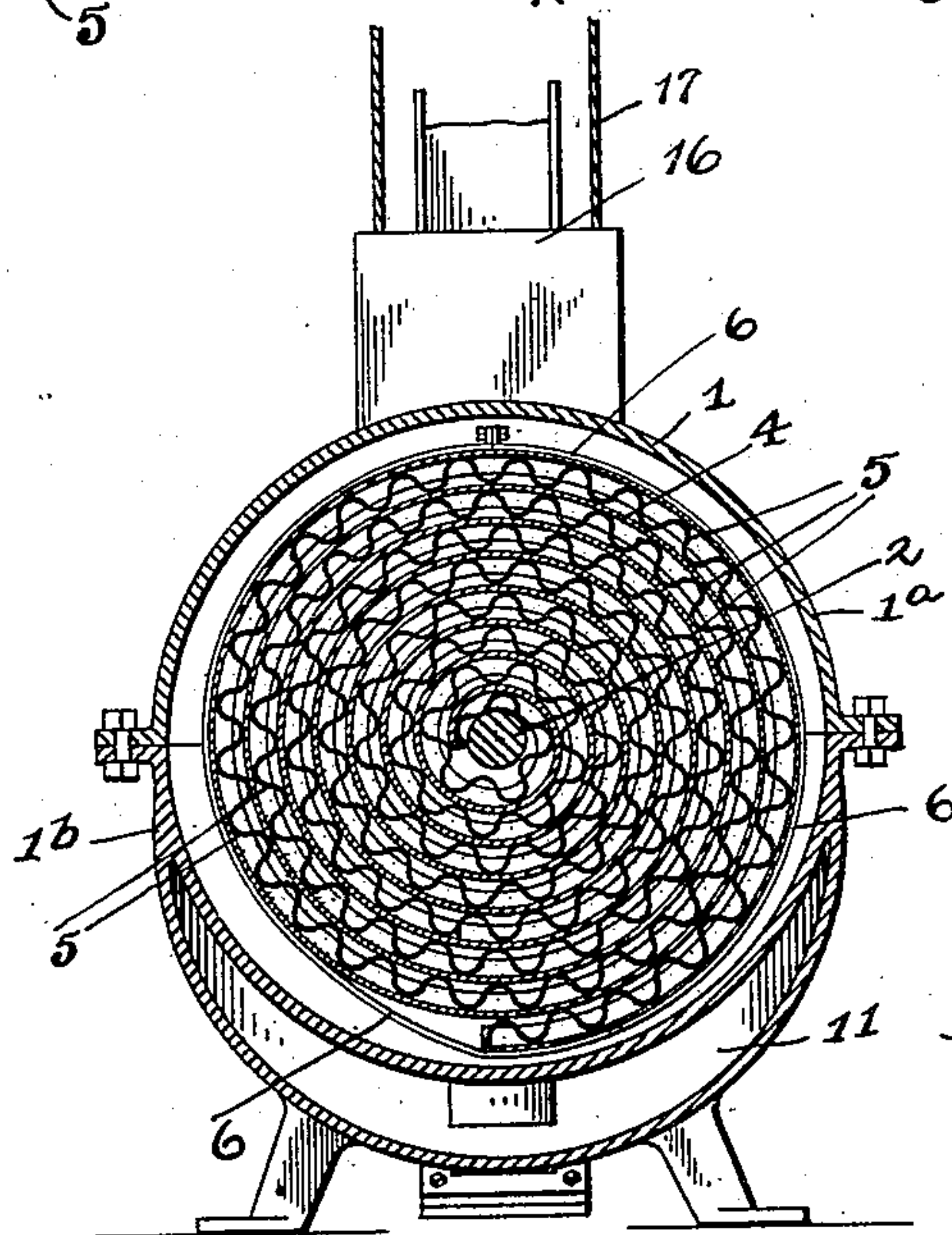


Fig. 2.

WITNESSES:

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AMALGAMATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 694,203, dated February 25, 1902.

Application filed May 20, 1901. Serial No. 61,022. (No model.)

To all whom it may concern:

Be it known that I, GERARD C. SCOTT, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Amalgamating-Machines, of which the following is a specification.

My invention relates to the improvement of amalgamating-machines of that class which are adapted for the amalgamation of precious metals; and the objects of my invention are to provide an improved construction of amalgamating-machine wherein a comparatively large area of amalgamating-surface is subjected to the action of mercury, to accomplish this object by the employment of a comparatively small amount of mercury, to provide in conjunction therewith means for discharging the used mercury into an accessible mercury-cleansing receptacle and returning the same to the body of mercury within the machine, and to provide other improvements the details of which will be more fully pointed out hereinafter. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a central longitudinal section of my machine, and Fig. 2 is a transverse section on line *x x* of Fig. 1.

Similar numerals refer to similar parts throughout both views.

In carrying out my invention I employ an external casing 1, which is preferably constructed of upper and lower detachable sections 1^a and 1^b. Journaled longitudinally and centrally within the casing 1 is a shaft 2; this shaft carrying a suitable power-wheel 3 adjacent to one of its ends. Upon the shaft is secured the inner end portion of a copper-plate coil 4, this plate preferably having a sufficient number of coils imparted thereto to substantially fill the casing 1. The inner surface of the coiled plate 4 is provided at desirable intervals and throughout its length with crimped strips 5, said strips serving to properly separate the coils of the plate, as shown more clearly in Fig. 2. The coiled body thus formed is bound at desirable intervals by binding strips or bands 6, which are clamped about the outer side of said coiled body. As indicated at 4^a, the ends of the coils, with the exception of the central coil, are curved or

bent inward, forming substantially cup-like terminations. The central coil of the plate 4 is formed at one end with an outward and flaring extension, as indicated at 4^b, this flaring extension being thus in position to discharge its contents into the enlarged mouth portion 7 of a gooseneck discharge-pipe 8, the outer end portion of which passes through one end of the lower section 1^b of the casing and terminates within an open mercury-receiving receptacle 9, which is arranged on the outer side of the casing 1. This receptacle 9 has leading outward from the lower portion thereof a pipe 10, which communicates with the lower portion of the casing 1. This lower portion of said casing 1 has constructed beneath and about the same a steam chamber or jacket 11, the latter having an inlet-opening 12 and an outlet-opening 13, said openings arranged at opposite ends of the jacket. I also provide the lower portion of the casing 1 with an outlet-neck 14, which intersects the steam-jacket 11 and which is provided with a detachable casing-head 15.

In the upper portion of the casing, preferably at one end thereof, I provide an inlet flue or hopper 16, through which may pass an endless operating rope or belt 17, from which motion may be transmitted to the wheel 3 and shaft 2. At the opposite end of the casing 1 from that having the inlet 16 I provide in the upper portion thereof a suitable discharge opening or chute 18.

As indicated by the dotted lines in the drawings, the lower portion of the casing 1 is designed to be provided with a desirable quantity of mercury 19, through which the outer portion of the coiled plate 4 must travel in its rotary motion, which is imparted thereto by the rotation of the shaft 2.

In utilizing my invention the ore-pulp or crushed ore and water is discharged into the casing 1 through the inlet 16, and owing to the fact that the pulp so discharged is under pressure the same will be carried between the surfaces of the coiled plate 4 and caused to pass out at the opposite end of the coils, the tailings being forced out through the outlet 18. In this operation it will be seen that the rotary movement of the coiled plate 4 through the mercury will result in the mercury being taken up first by the lower coils and caused

to follow said coils to the center. In this manner it will be seen that a comparatively large copper-plate surface is subjected to the action of the mercury and that the copper-plate surface thus treated will afford a corresponding amalgamating-surface for the ore-pulp which passes therethrough and in contact therewith. The mercury which reaches the inner or central coil is discharged therefrom into the mouth of the pipe 8 and through the latter into the outer receptacle 9, where it may be purified or cleansed chemically or otherwise to the desired extent before it returns to the body of the casing through the pipe 10. By directing the desired volume of steam or other suitable heating element into the chamber 11 it will be observed that the mercury which is contained in the lower portion of the casing may be heated to the desired temperature.

From the construction and operation herein shown and described it will be seen that a simple and effective amalgamating-machine is provided wherein a comparatively large amalgamating-surface is attained and that a comparatively small body of mercury is employed in the proper operation of the machine.

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

1. In an amalgamating-machine, the combination with a casing having inlet and outlet openings said casing adapted to contain a body of mercury in its lower portion, of an amalgamating-plate bent into a coiled form and journaled within said casing the spaces between said coils being open at their ends and said coils extending approximately parallel with and about the central coil and

means for imparting a rotary motion to said coiled plate.

2. In an amalgamating-machine, the combination with a casing having inlet and outlet openings and adapted to contain a body of mercury in its lower portion, of a shaft journaled centrally within said casing, an amalgamating-plate bent into a coiled form and having its inner end connected with said shaft and means for supporting the coils of said plate one from the other without closing the spaces or passages between the same, substantially as specified.

3. In an amalgamating-machine, the combination with a casing having inlet and outlet openings and adapted to contain a body of mercury in its lower portion, of an amalgamating-plate bent into a coiled form and journaled within said casing, the inner coil of said amalgamating-plate having a flaring extension as described, a mercury-receptacle on the outer side of the casing and conductors leading respectively from a point below the inner coil of the amalgamating-plate to said outer receptacle and from the latter to the lower portion of the casing, substantially as specified.

4. In an amalgamating-machine, the combination with a casing having inlet and outlet openings and adapted to contain a body of mercury in its lower portion, of an amalgamating-plate bent into a coiled form and having its ends bent inward, said coiled plate journaled within said casing and means for imparting a rotary motion to the coil, substantially as specified.

GERARD C. SCOTT.

In presence of—

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