W. W. GUEST.

AMALGAMATOR.

APPLICATION FILED OCT. 21, 1912.

1,067,023. Patented July 8, 1913.

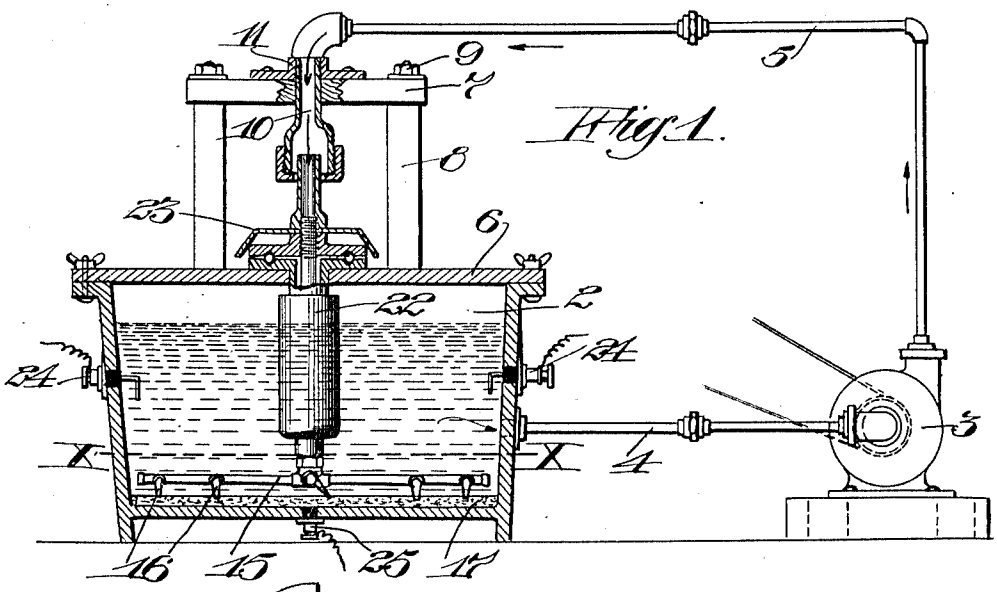


Fig. 1.

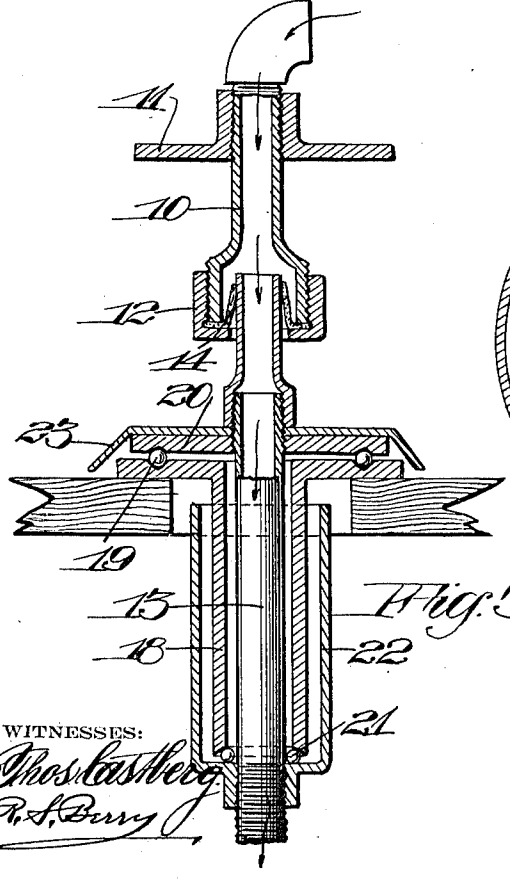


Fig. 2.

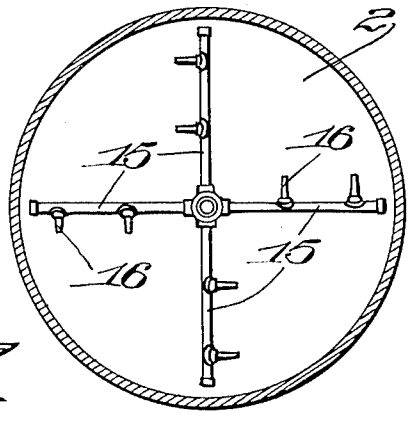


Fig. 3.

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AMALGAMATOR.

1,067,023. Specification of Letters Patent. Patented July 8, 1913.

Application filed October 21, 1912. Serial No. 726,984.

To all whom it may concern:

Be it known that I, WILLIAM W. GUEST, a citizen of the United States, residing at Alameda, in the county of Alameda and State of California, have invented new and useful Improvements in Amalgamators, of which the following is a specification.

My invention relates to an apparatus for amalgamation of precious and valuable metals; in means for separating the material to be acted on, and means for providing freely turnable bearings and tight joints for the passing material.

It comprises details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a vertical section through the amalgamator. Fig. 2 is a cross section on line X—X of Fig. 1. Fig. 3 is an enlarged detail view.

My apparatus generally consists of a container 2, through which the liquid, slime, or material to be treated is circulated by means of a centrifugal pump 3, connected with the lower part of the container by a pipe 4 through which the pump continually draws the material into itself and into the pipe 5 through which the material is ejected and returned to the container.

Across the top of the container is fixed a beam 6 which serves to support the devices hereafter described. Above this beam is supported a second beam 7, by means of standards 8 resting upon the beam 6, and the whole secured together by screw-bolts and nuts as at 9.

10 is a pipe which may be united to the pipe 5 by a coupling flange, as at 11. The lower end of this pipe is enlarged and has fitted upon it a nut 12.

13 is a pipe having a head at the upper end, turnable within the enlargement of the pipe 10, and the upper end is surrounded by a flexible washer 14 which is upturned around the sides of the pipe, and the horizontal portion is clamped between the nut 12 and the lower end of the pipe 10, thus forming a tight, but flexible joint. The pipe 13 extends down to near the bottom of the receiver 2, and has radially disposed arms 15 connected to its lower end and revolving in a horizontal plane in the bottom of the container. These arms are provided with inclined discharge pipes 16, the lower ends of which dip into a body of mercury, as indicated at 17, so that material carried to the pipes will be delivered into intimate contact with the mercury. The body of mercury also acts to cause this portion of the apparatus to continually revolve in a reactionary manner. The material after passing through the mercury rises to the level of the pipe 4, and is again withdrawn by the pump 3, and again circulated through the apparatus. In order to guide and steady this revolving tube 13 and its appendages as shown surrounding it, I have provided a tube 18, having a flange adapted to rest on the beam 6, and the upper surface of the flange having grooves for ball-bearings, as shown at 19. The other member 20 of the ball-bearing is secured to the pipe 13, and has ball-bearing grooves in its lower face corresponding with those in the part 18. The lower end of the tube 18 is beveled to form bearings for balls, as at 21.

Fixed to the pipe 13 is a tubular structure 22, the upper portion of which surrounds the pipe 18 with an annular space between, and the lower end is drawn in and keyed or otherwise secured to the lower end of the pipe 13, and revoluble with it. The inwardly curved lower portion of this part 22 forms the complementary bearing for the balls 21. Thus the tube 13 with its radiating arms 15 is supported between the balls 19 and the balls 21, which are at such a distance apart as to form a sufficiently rigid guide for the revoluble tube and its attachments, and it is thus not necessary to provide any step at the bottom of the pan or container, which is thus left perfectly clear of all obstructions.

In order to provide for any possible leakage which may take place through the joint shown at 14, I have shown a drip plate 23 which is in the form of an inverted pan, inclosing a bearing plate 20 and the upper end of the tube 18, and any drip or leakage which may occur through the joint at 14 will be guided outwardly and fall into the receiver 2.

An electrical circuit is maintained through the apparatus, consisting of positive electrodes connecting with the interior of the pan, as at 24, and the negative electrodes leading outwardly from the body of mercury within the pan, as at 25; the circuit being maintained by any direct current generator, not shown.

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

1. In an apparatus of the character described, a vertical pipe through which the slime is brought to the apparatus, a vertical pipe in line therewith, a receiver into the bottom of which said pipe extends with radial arms and tangential discharges, a flanged tube supporting and surrounding the said pipe, and having ball bearing supports at its upper and lower end, and coöperating bearing members fixed with relation to the upper and lower end, the lower member being connected with the revoluble pipe.

2. In an apparatus of the character described including a container, a beam fixed across the top thereof, a tube having a ball bearing flange at the top, said flange resting upon the beam, and said tube having a ball bearing formed at the lower end thereof, a vertical pipe extending through said tube and having radial arms and discharge nozzles adapted to convey material into the pan, a sleeve having its lower end fixed to said tube, said sleeve being enlarged to inclose the lower end of the ball bearing tube and having a ball bearing support formed to coöperate with that of the lower end of the tube.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM W. GUEST.

Witnesses:
JOHN H. HERRING,
W. W. HEALEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."