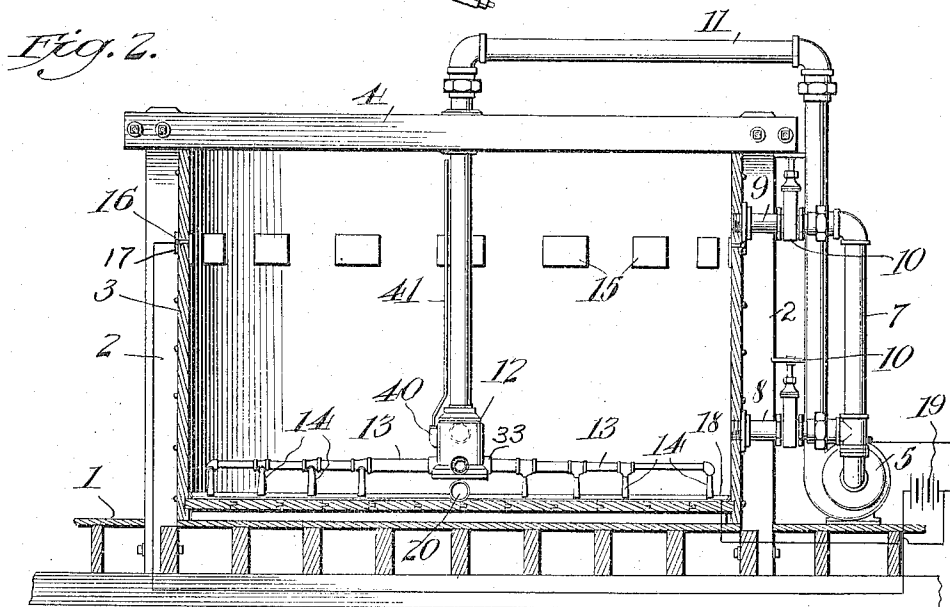
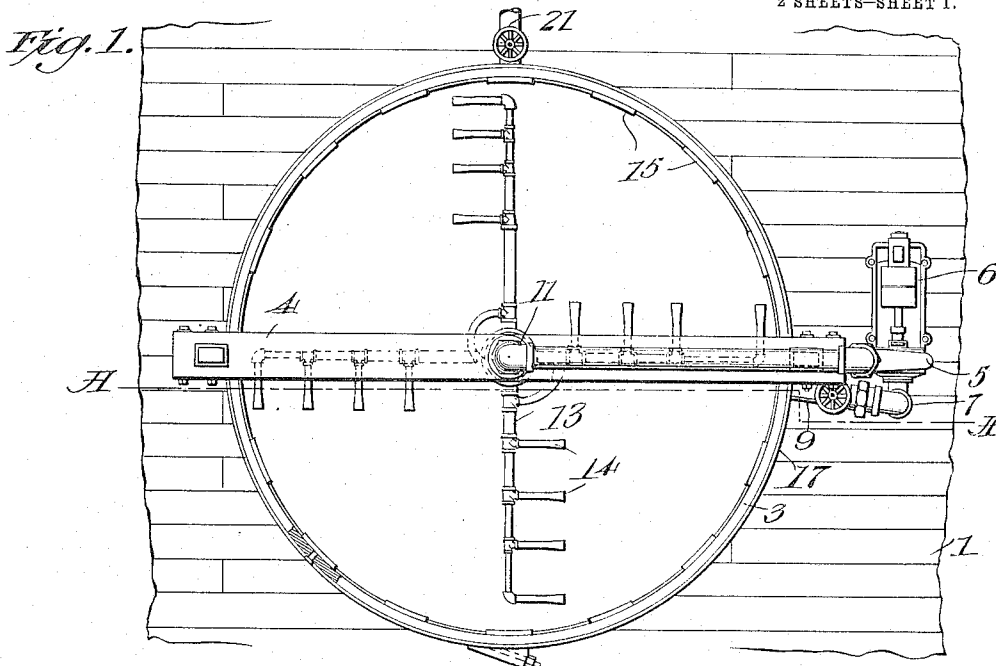


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AGITATING ELECTRIC AMALGAMATOR.  
APPLICATION FILED NOV. 14, 1913.

1,128,905.

Patented Feb. 16, 1915.

2 SHEETS-SHEET 1.



Witnesses:  
*T. L. Mochamer*  
*J. B. Bolt*

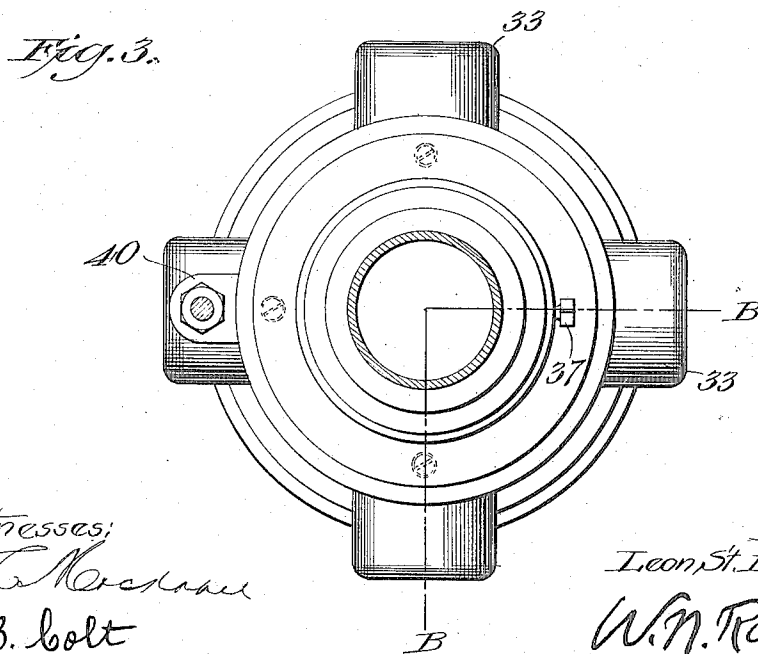
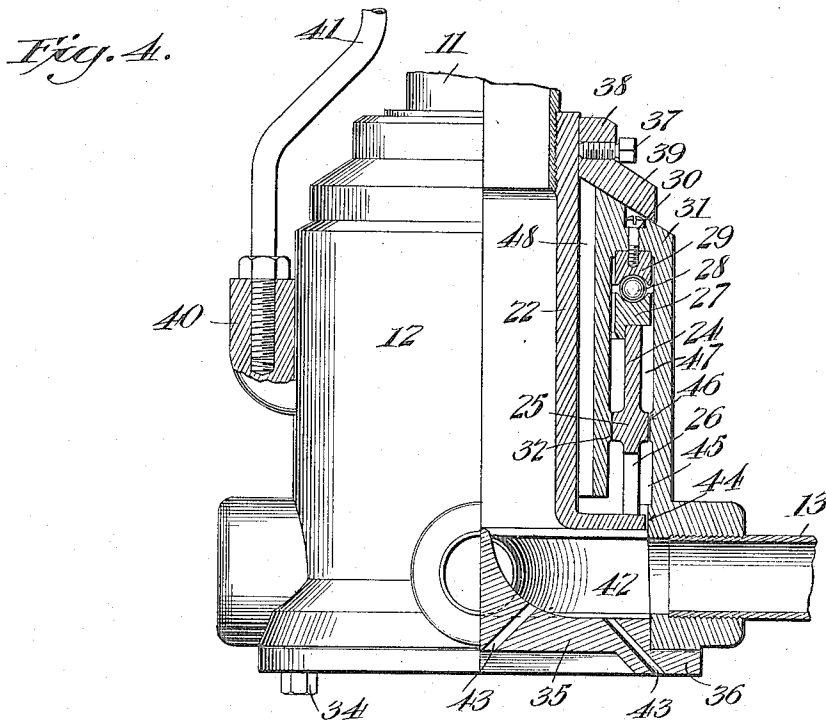
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*J. B. bolt*

Inventor:  
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# UNITED STATES PATENT OFFICE.

LEON ST. D. ROYLANCE, OF SAN FRANCISCO, CALIFORNIA.

AGITATING ELECTRIC AMALGAMATOR.

1,128,905.

Specification of Letters Patent.

Patented Feb. 16, 1915.

Application filed November 14, 1913. Serial No. 800,993.

*To all whom it may concern:*

Be it known that I, LEON ST. D. ROYLANCE, a citizen of the United States of America, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Agitating Electric Amalgamators, of which the following is a specification.

This invention relates to amalgamators, and more particularly to electrical amalgamators of the agitating type.

The objects of my invention are the production of a simple, cheap and efficient electric, agitating amalgamator so constructed as to avoid disintegration of the agitating metallic parts within the amalgamator, due to electrolysis, and having its antifriction bearings positively protected from contact with the solution contained in the amalgamator.

With these, and such other objects as may hereinafter more fully appear, my invention consists in the novel arrangement and construction of parts set forth in the specification; claimed in the claims, and which are shown in the accompanying drawings, wherein:—

Figure 1 is a plan view of the amalgamator. Fig. 2 is a vertical sectional view taken on the line A—A of Fig. 1. Fig. 3 is a plan view of the ball bearing gland. Fig. 4 is a vertical quarter section taken on the line B—B of Fig. 3.

Referring to said drawings by numerals; a suitable platform or base 1 has mounted thereon, in any convenient manner, but preferably between the uprights 2, a tank 3 of any suitable material; the same being here shown constructed of wood. The uprights 2 may be joined at their upper extremities, as here shown, by the girder or strengthening beam 4.

Suitably located on platform 1, beside tank 3, is a pump 5, the same being by preference rotary, as here shown, and adapted to be actuated by any suitable source of power such as the motor 6. The intake pipe 7 of said pump is, by preference, provided with two branch intake pipes 8 and 9, communicating with the interior of tank 3, as clearly shown in Fig. 2. Pipes 8 and 9 are provided with ordinary gate valves 10 to regulate the flow of solution therethrough. Pump 5 is further provided with a discharge pipe 11 adapted to enter the tank 3

at any convenient point, but as here shown it extends downwardly through the central portion of said tank, being supported in said position by the aforesaid girder 4 through which it passes. The lower extremity of discharge pipe 11, within said tank, is suitably fastened, by screw joint or otherwise, in a ball-bearing gland 12 which is held, by said pipe, slightly above the bottom of the tank and in the discharge openings of which are fastened the radially extending arms 13 provided with suitably spaced, inclined discharge nozzles 14. Around the interior wall of said tank, and near the upper portion thereof, are placed suitably spaced metallic plates 15 which are in electrical connection through the screws or bolts 16 with a metal band or hoop 17, which encircles the tank 3 at its outer surface. Within tank 3, and at the bottom thereof, is placed a suitable amalgamating plate 18. A suitable source of electrical supply, such as the battery 19, has its positive pole electrically connected to the plates 15 through the hoop or band 17; thus making said plates the anodes. The negative pole of said source of electric supply is connected to the amalgamating plate 18 and also to the pump and piping therefor, rendering the same cathodes. The purpose of connecting the negative pole to the metallic operating parts of the system is to prevent disintegration thereof through electrolysis. A suitably located discharge port 20 is provided at a convenient point in said tank in which is fastened a pipe 21, the purpose of the same being to empty the tank when desired.

The before mentioned ball-bearing gland 12 is an important feature in the successful operation of a device of this character, it being desirable to have said part operate with as little friction as possible and for this reason it is necessary that the balls and ball race be kept free from encroachment of the solution contained in the tank and passing through the gland. Gland 12 consists of the slightly tapering cylindrical member 22, interiorly threaded at its upper portion to engage the threaded end of discharge pipe 11. The lower end of said cylindrical member 22 is provided with an outwardly extending flange 23, preferably formed integral with said member 22. Mounted upon said flange 23, and by preference integral therewith, is a vertically disposed cylindri-

cal member 24 provided, at a suitable point thereon, with a horizontally disposed rib 25, and further provided, near the base thereof, with suitably spaced openings 26. Seated upon the upper edge of the aforesaid cylindrical member 24, is a ring 27, having a groove in its upper surface to form a race for the balls 28 which are retained in place by the superimposed grooved ring 29. Ring 29 is retained by means of set screws 30, in a groove formed in the spanning or joining portion of a double walled cylinder 31, the walls of which extend downwardly on either side of the aforesaid cylindrical member 24, and the rings 27 and 29. The contiguous faces of said double walled cylinder 31 are provided with horizontally disposed ribs 32 alining with the aforesaid rib 25, for a purpose hereafter set forth. The outer wall of said member 31 extends beyond the inner wall and is provided, near the lower portion thereof, with the outwardly extending radial hubs 33; said hubs being interiorly threaded to receive the threaded ends of pipes 13. Fastened to the lower end of the outer cylinder of said cylindrical member 31, through bolt 34, is a conical plate 35, the reduced rim 36 of which is adapted to receive the rim of said cylinder 30 to form a practically water tight joint.

Adjustably mounted on the upper end of cylindrical member 22, by any suitable means such as the set screw 37, is a collar 38 provided with a conical flange 39 adapted to overlie the conical top of cylindrical member 31. At a convenient point on the outer surface of cylindrical member 31, is formed a suitable projection 40, said projection being tapped to receive the threaded end of indicator rod 41.

As will be readily understood, when the solution is placed in the tank 3 the same will enter the pipes 13 through the nozzles 14, and from there find its way to chamber 42, to which it will also gain access through the openings 43 arranged at intervals in the plate 35. The liquid will also rise from chamber 42 through the clearance space 44 into the chambers 45, from which it will have access, through the clearance spaces 46, to the chambers 47, in which latter chamber the air will be trapped, as will be readily understood. When the pump is in action, and the solution being forced down into the gland 12 through pipe 11, the shoulders formed by the ribs 25 and 32 will prevent the solution being rapidly injected or squirted into chambers 47 and thereby contacting with the rings or balls. Under this forced pressure the solution will rise from chamber 45 through passageway 48 and escape through the space between flange 39 and the

upper portion of member 31. This passageway 48 and space communicating therewith also allows air to enter for the proper draining of the gland.

The operation of the complete device is as follows: The solution containing the ore in suspension is placed in the tank 3, the pump is started causing the solution to be sucked through pipes 8 and 9, and pipe 7 to the pump from whence it is expelled through pipe 11, gland 12, radially extending pipes 13 and nozzles 14. The force of expulsion from nozzles 14 causes the arms 13 to revolve. The indicator arm 41, extending above the solution, will provide a ready means of determining whether revolution is taking place and the speed thereof. In the meantime electric current is supplied to the plates 15 and plate 18 causing electrochemical action in the solution and depositing the metal therein on the amalgamating plate 18.

Having described my amalgamator, what I claim as new and desire to secure by Letters Patent, is:—

1. An agitating amalgamator comprising a tank, an agitator revolubly mounted therein, said agitator comprising a gland, a ball race suitably located within said gland, means for entrapping air within said ball race, and mechanism for operating said agitator.

2. In an agitating amalgamator, a tank, an outlet pipe therefor, an inlet pipe, a gland mounted on said inlet pipe, said gland comprising an inner stationary member, an outer member revolubly mounted thereon, said member being provided with a ball race chamber, a ball race within said chamber, means for trapping air within said chamber, and mechanism for causing said outer member to revolve.

3. In an agitating amalgamator, a tank for holding the solution, an outlet and inlet pipe therefor, means connected to said pipes for causing a circulation of the solution, a gland carried by the inlet pipe, a ball race within said gland, and means for entrapping air around said ball race.

4. In an agitating amalgamator, a tank, an overhung gland therein, comprising a stationary member, an annular flange on said stationary member, a cylindrical member secured to said flange, a rotary member mounted on said cylindrical member, and means for rotating said rotary member.

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

LEON ST. D. ROYLANCE.

Witnesses:

ELLEN E. HERRIN,  
A. J. HENRY.