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PATENTED APR. 26, 1904.

T. B. JOSEPH.

APPARATUS FOR EXTRACTING METALS BY CHEMICAL PROCESS.

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NO MODEL.

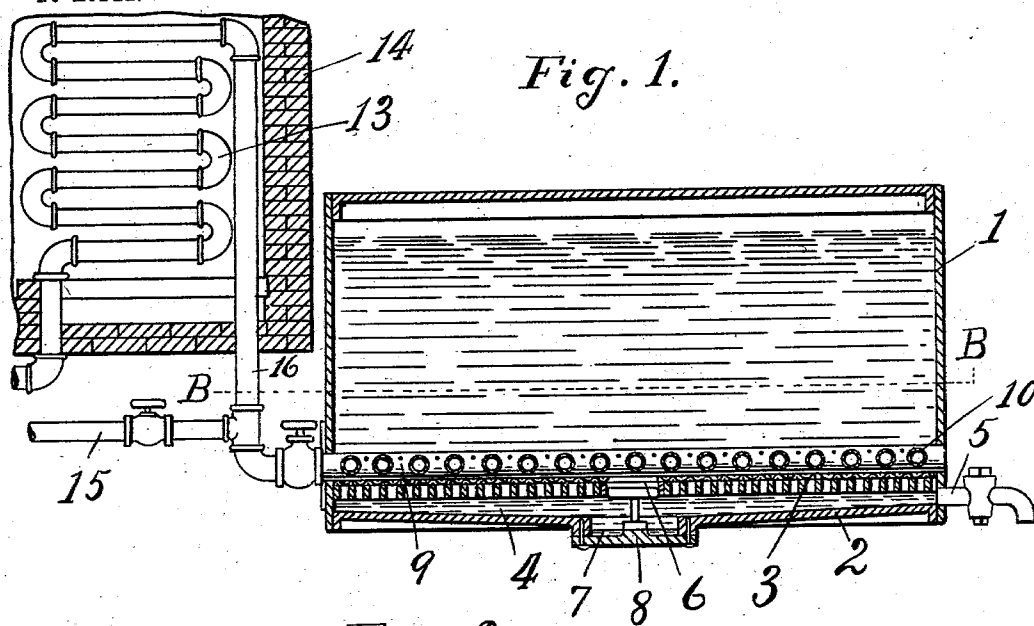
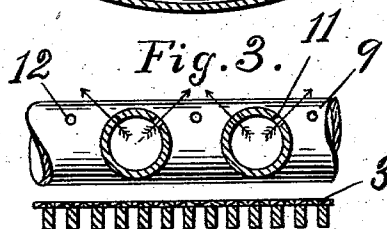
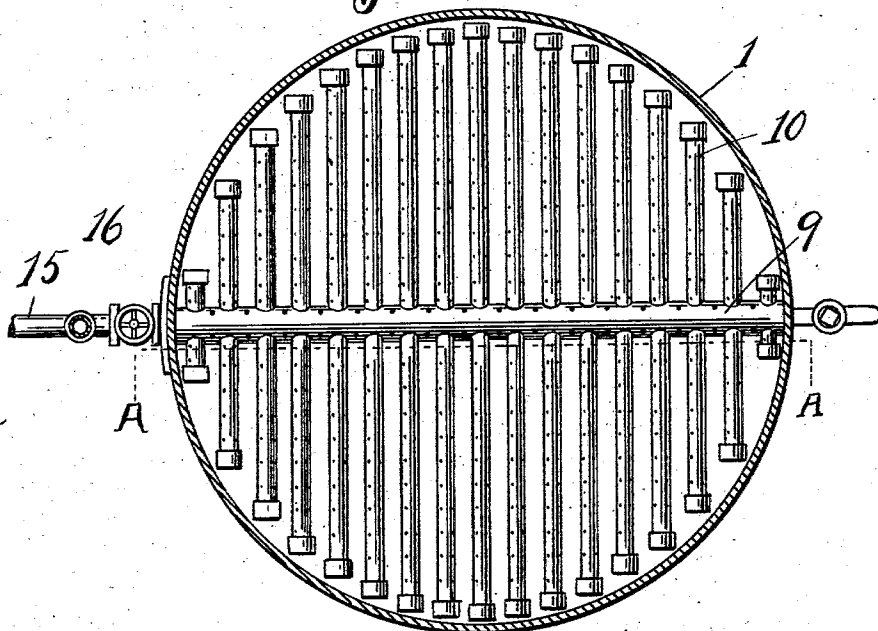


Fig. 2.



Witnesses

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APPARATUS FOR EXTRACTING METALS BY CHEMICAL PROCESS.

SPECIFICATION forming part of Letter: Patent No. 758,367, dated April 26, 1904.

Application filed September 2, 1903. Serial No. 171,648. (No model.)

To all whom it may concern:

Be it known that I, THOMAS B. JOSEPH, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Apparatus for Extracting Metals by Chemical Process, of which the following is a specification.

My invention relates to the extraction of metals from their ores by means of solvents and the application of atmospheric air thereto. I show it herein especially applied to the extraction of gold and silver from their ores by means of a solution of cyanid of potassium, but without limiting myself either as to the kind of ore or as to the particular solvent mentioned herein.

My invention therefore resides in the novel construction, combination, and arrangement of parts for the above ends hereinafter fully specified, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a transverse vertical section of the apparatus on the line A A of Fig. 2. Fig. 2 is a horizontal section on the line B B of Fig. 1. Fig. 3 is an enlarged detail view.

Referring to the drawings, 1 represents a tank containing the solutions. Near the bottom 2 of this tank is a false or filtering bottom 3, which may be composed of any material of suitable strength and filtering qualities—as, for instance, a wooden grating covered with burlap on the upper surface. Between the false and true bottoms is an intermediate chamber 4, into which the liquid percolates through the false bottom.

5 is a pipe for drawing off the liquid. For the removal of the pulp a hole 6 is provided, and in line therewith in the true bottom is a hole 7, said hole being furnished with suitable detachable closures 8. More than one of these holes may be used, if desired.

Above the false or filter bottom, but located near it, is a main pipe or header 9, which extends, preferably, diametrically across the false bottom. It is connected with a pipe 16, leading from any suitable air-forcing apparatus. From the main pipe 9 the air is distributed through branch pipes or members 10. These are made to conform to the shape of the tank, which is shown as cylindrical, and

the pipes are therefore made in varying lengths, so as to reach every part of the bottom. These branch members are capped or closed at their outer ends by any suitable method and are perforated, as at 11, to permit of the escape of the air.

The construction thus far described is old and forms no part of my invention, which consists in the arrangement and inclination of these perforations. The perforations are directed slightly upward in all cases, so that the compressed air has a slightly-upward movement when escaping from the pipes, whereby the slimes are driven upward and not down through the filter-bottom, as heretofore when the compressed air was forced downward when escaping from the pipes.

A further improvement consists in providing perforations 12 in the main header, as well as in the branch pipes.

In certain cases the compressed air may be heated by means of a coil of pipe 13 in a heating-furnace 14 before the air enters the leaching-tank or, if desired, by connecting the air-pipe with the steam-pipe 15, leading from a steam-boiler.

I claim—

1. An apparatus for extracting metals by chemical process comprising a tank provided with a filter-bottom, and a perforated pipe placed within the tank above and near the filter-bottom and connected with an air-compressor, said perforations being directed upward with a slight inclination only to drive the slimes upwardly, substantially as described.

2. An apparatus for extracting metals by a chemical process comprising a tank provided with filter-bottom, a pipe or header adapted to supply air, lateral parallel branches from said pipe, said pipe and branches extending across and near the bottom within the tank and being provided with perforations arranged to discharge small streams of air upwardly with only a slight inclination to drive the slimes upward, substantially as described.

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

THOMAS B. JOSEPH.

Witnesses:

FRANCIS M. WRIGHT,
BESSIE GORFINKEL.