No. 724,076. PATENTED MAR. 31, 1903.

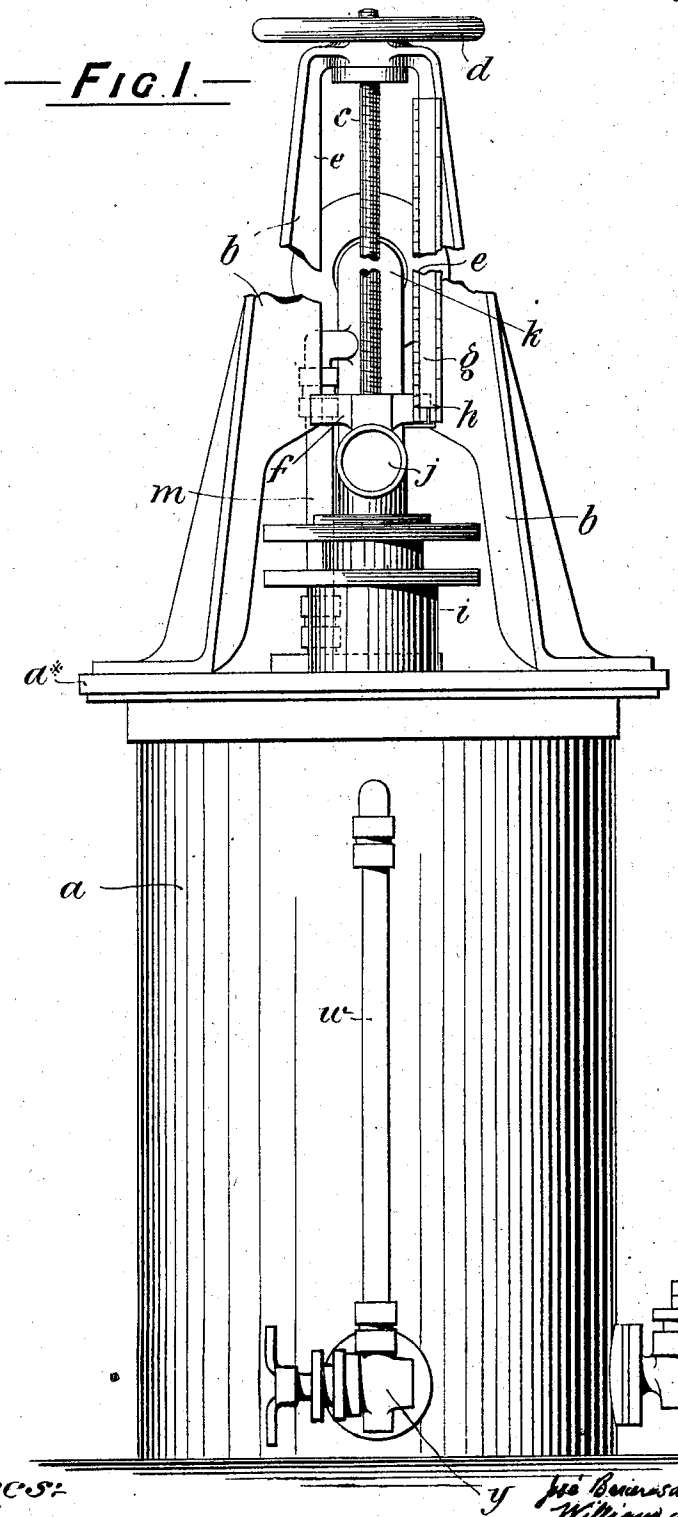
J. BAXERES DE ALZUGARAY & W. A. MERCER.

APPARATUS FOR EXTRACTION OF PRECIOUS METALS.

APPLICATION FILED DEC. 8, 1902.

NO MODEL. 3 SHEETS--SHEET 1.

—FIG. 1.—



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Inventors.
Jos Baxeres de Alzugaray
William A. Mercer
By attorneys
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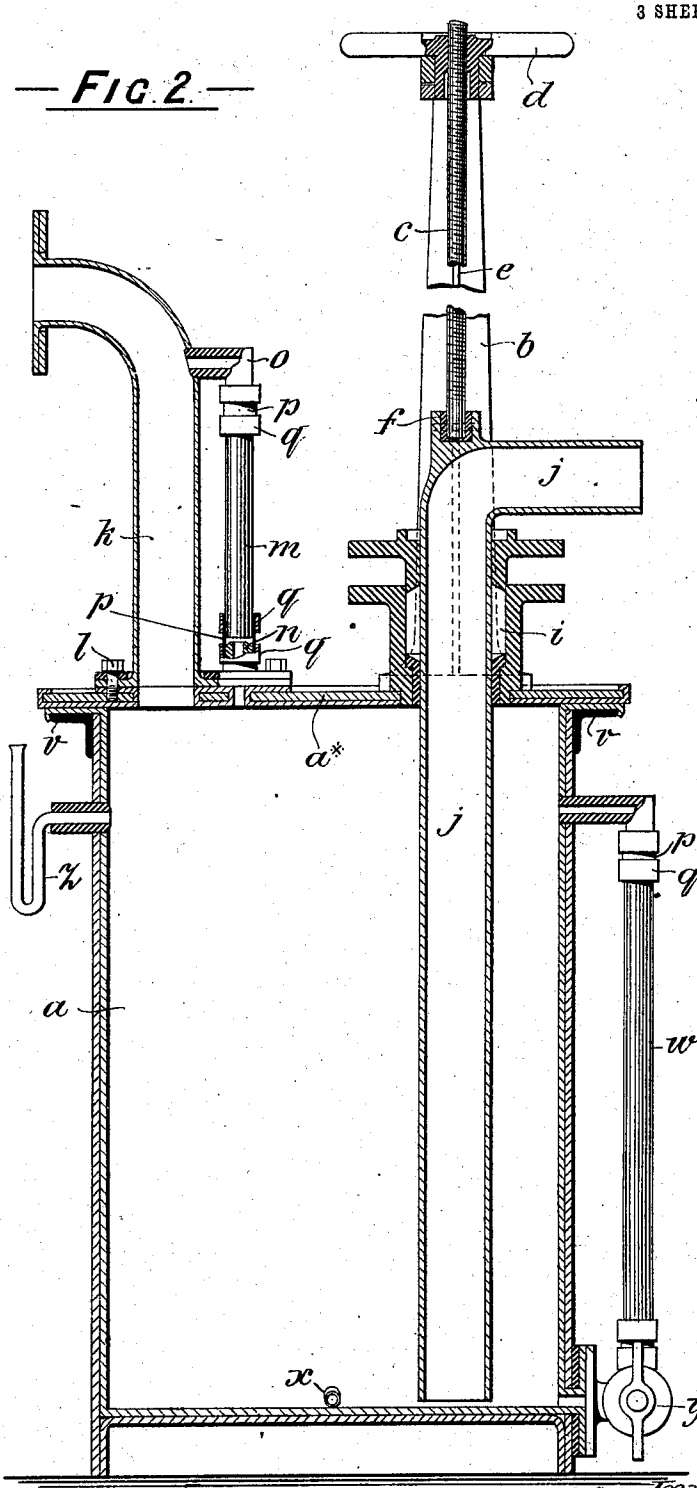
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NO MODEL. 3 SHEETS—SHEET 2.

— FIG. 2. —



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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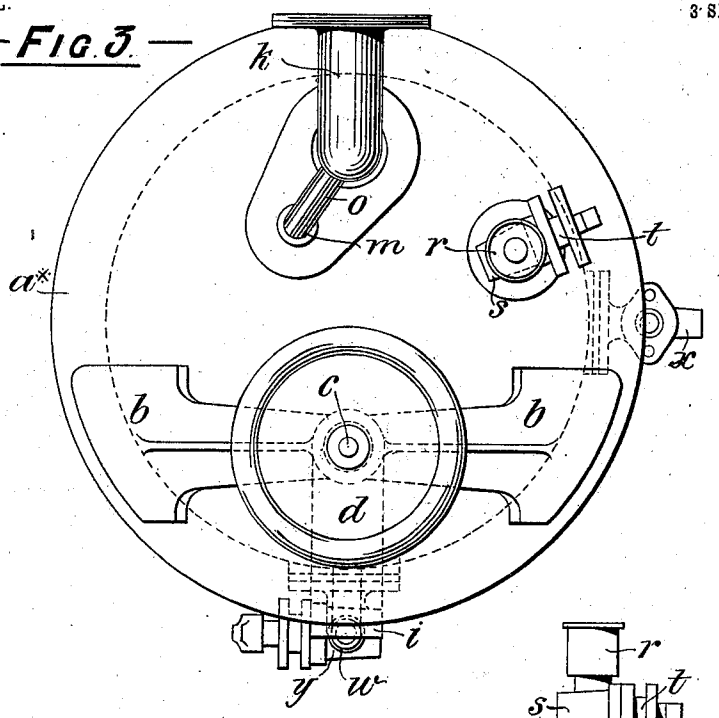
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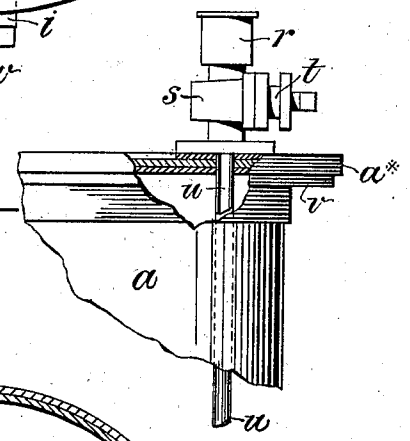
APPLICATION FILED DEC. 8, 1902.

NO MODEL. 3 SHEETS—SHEET 3.

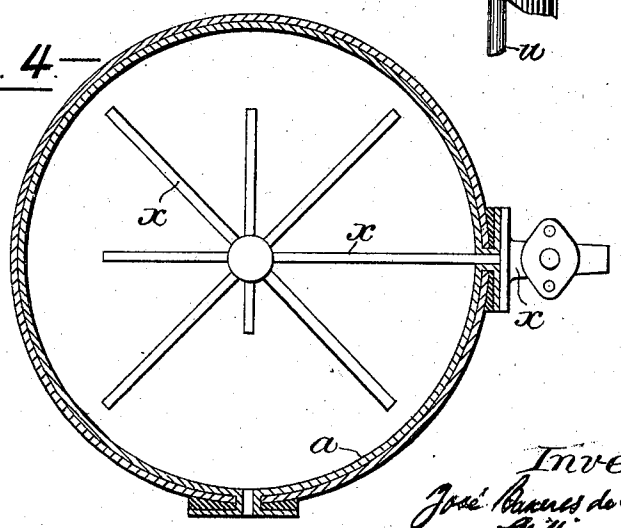
—FIG. 3.—



—FIG. 5.—



—FIG. 4.—



Witnesses
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UNITED STATES PATENT OFFICE.

JOSÉ BAXERES DE ALZUGARAY AND WILLIAM A. MERCER, OF LONDON, ENGLAND, ASSIGNORS TO THE BAXERES GOLD EXTRACTION COMPANY, LIMITED, OF LONDON, ENGLAND.

APPARATUS FOR EXTRACTION OF PRECIOUS METALS.

SPECIFICATION forming part of Letters Patent No. 724,076, dated March 31, 1903.

Application filed December 8, 1902. Serial No. 134,267. (No model.)

To all whom it may concern.

Be it known that we, JOSÉ BAXERES DE ALZUGARAY, a citizen of the Argentine Republic, and a resident of Suffolk House, Laurence Pountney Hill, in the city of London, and WILLIAM ALEXANDER MERCER, a subject of the King of Great Britain, and a resident of Blomfield House, 85 London Wall, in the city of London, England, have invented certain new and useful Apparatus for Use in the Extraction of Precious Metals from Their Ores, of which the following is a specification.

In the accompanying drawings, Figure 1 is an elevation of the apparatus. Fig. 2 is a sectional elevation at right angles to Fig. 1. Fig. 3 is a plan view. Fig. 4 is a cross-section; and Fig. 5 is a side view, partly in section, of a filling device.

This invention relates to the preparation of oxidizing materials for use in the extraction of precious metals from their ores, the said materials being employed for the purpose of splitting off extraneous matters of all kinds from the precious metals, leaving the latter free to be acted upon by a solvent of gold and silver. The oxidizing materials employed are bromin and chlorin or a combination of the same, with their acids or oxy-acid compounds diluted with oxygen in any convenient form. These materials are of a very pungent character and are likely to be very prejudicial to the health of the workmen employed in the process of preparation, and consequently the preparation has to take place in closed vessels outside the vessels in which the ore is treated; and the object of this invention is to provide such closed vessels of suitable construction whereby the preparation of these oxidizing materials may be conveniently effected.

a is a vessel of any suitable capacity constructed of sheet-steel lined with lead and provided with a sheet-steel cover *a**, also lined with lead. Upon the cover *a** are bolted standards *b* to support a screw *c* and a wheel-nut *d*, by which the screw is turned in one direction or the other, so that it may be raised or lowered. In the standards *b* are guides *e* for a cross-head *f*, which is attached to the end of the screw and the use of which will be presently explained. One of the guides *e* carries a scale *g*, and upon the cross-head *f* is a pointer *h* to indicate on the scale the height of the cross-head *f*.

Passing through a stuffing-box *i*, bolted or otherwise secured to the cover *a**, is a pipe *j*, which serves as an inlet-pipe into the vessel *a* for air, which may be forced by a pump or other contrivance. (Not shown.) This pipe is made of hard metal, and externally it is turned perfectly true, so that it will readily slide through the stuffing-box and at the same time will hermetically seal the vessel *a*, so as to prevent the escape of the gaseous contents. This pipe *j* is of such a length that it will extend through the stuffing-box to the bottom of the vessel *a*, and at the top the pipe is attached to the cross-head *f* in any convenient manner. It will thus be seen that by working the wheel *d* in one direction or the other the screw *c* will be raised or lowered without being rotated, and with it the pipe *j*, for a purpose to be presently explained.

k is an outlet-pipe from the vessel *a*, which pipe is preferably of lead, and it is bolted to the cover *a**, with its axis in line with the axis of an opening in the cover. The bolts *l* for securing these parts together, it will be seen, are screwed into or riveted to the steel cover *a** and do not project through the lead lining, as will also be the case in all other places where necessary, so that the lead lining may be perfectly intact.

m is an inspection-glass, like a gage-glass, which is fitted at one end to a hard-metal nipple *n* in connection with the vessel *a* and at the other end to a similar nipple *o* in connection with the pipe *k*. The connections are made by means of pieces of india-rubber tube *p*, tightly gripped to the parts by brass or other metal clips *q*. The object of this inspection-glass will be presently explained.

Connected with the cover *a** is a filling device consisting of a hard-metal cup *r* and plug-barrel *s*, fitted with a stoneware plug *t*. This device is provided with a length of lead pipe *u*, which extends nearly to the bottom of the vessel *a*.

The cover a^* is of larger diameter than the vessel a and is bolted through a flange or brackets v, formed on or secured to the vessel a.

The vessel a is fitted with a gage-glass w, which is attached thereto in a manner similar to that already described with respect to the inspection-glass m.

In the bottom of the vessel a is an agitator x, composed of perforated radial lead pipes which are in suitable connection with the force-pump for the air, so that the chemical solution in the vessel may be from time to time agitated.

z is a pressure-gage of any convenient construction. The drawings indicate a bent glass pipe filled with the desired amount of mercury.

By the expression "hard metal" is meant a metal which is of such a composition that the fumes of the chemical will not cause corrosion, and such a metal may be an alloy of lead and antimony.

y is a draw-off cock from the bottom of the vessel.

The operation is as follows: The vessel is filled through the filler r to a suitable height (as will be indicated by the gage-glass) with the chemical—say liquid bromin or chlorin—with or without water, and other substances, and the air-inlet from the force-pump is then opened. Air is then blown through the liquid, which is thereby vaporized, and the gases pass by the outlet-pipe k to the vessel where the ore is to be treated. According to the amount of impregnation of the air required the inlet-pipe j is lowered or raised, so as to more or less dip into the liquid or withdraw entirely out of it, so that the air may have only surface contact.

The nature of the chemicals employed forms no part of the present invention, and therefore any reference to chemicals is made merely for the purposes of explanation.

The degree of impregnation is ascertained by the color of the gas, which can be seen by means of the inspection-glass m, above mentioned.

The gage-glass w will be provided with a scale corresponding to that on the guide of the standards b.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. Apparatus for use in treating ores and comprising a lead-lined vessel capable of being hermetically closed and provided with a gage-glass and a filling device, a vertically-adjustable air-inlet pipe, an outlet-pipe provided with an inspection-glass and means for agitating the contents of the vessel, all as herein shown and described.

2. In apparatus for treating ores, a hermetically-closed lead-lined vessel to contain a liquid chemical, in combination with a hard-metal air-inlet pipe, capable of sliding in a stuffing-box and secured to a screw provided with a wheel-nut, carried by standards on the closed vessel, whereby the height of the pipe in the vessel may be adjusted, such mechanism constituting means for regulating the impregnation of the air with the chemical, as herein shown and described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOSÉ BAXERES DE ALZUGARAY.
WM. A. MERCER.

Witnesses:
NOEL L. POCOCK,
W. R. HARROWER.