

No. 743,551.

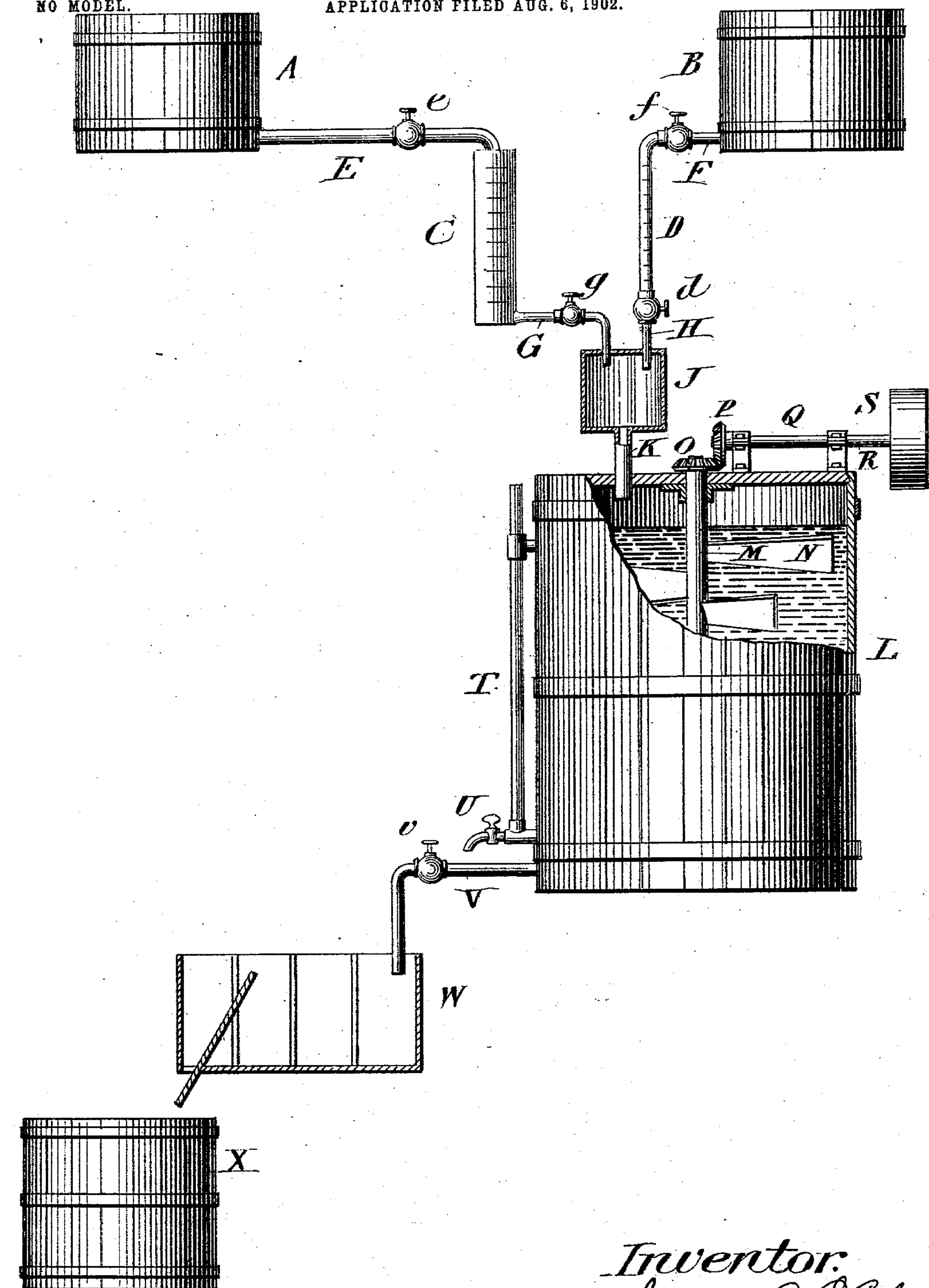
PATENTED NOV. 10, 1903.

J. A. OGDEN.

APPARATUS FOR EXTRACTING PRECIOUS METALS FROM
CYANID SOLUTIONS.

NO MODEL.

APPLICATION FILED AUG. 6, 1902.



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APPARATUS FOR EXTRACTING PRECIOUS METALS FROM CYANID SOLUTIONS.

SPECIFICATION forming part of Letters Patent No. 743,551, dated November 10, 1903.

Application filed August 6, 1902. Serial No. 118,657. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. OGDEN, a citizen of the United States, residing at No. 8 Jefferson street, Deadwood, in the county of Lawrence and State of South Dakota, have invented certain new and useful Improvements in Apparatus for Extracting Gold, Silver, and other Precious Metals from a Cyanid Solution of the Same, &c.; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which forms a part of this specification.

My invention relates to improvements in an apparatus for extracting gold, silver, or other precious metals from a cyanid solution of the same; and it consists in the combination and arrangement of the parts hereinafter set forth and claimed.

The accompanying drawing, which forms a part of this specification, represents a partial side and partial sectional view of an apparatus embodying my invention.

In the drawing, A designates a tank in which a primary or cyanid solution containing the metal to be extracted is placed and from which it is run through the pipe E, provided with the controlling-cock *e*, into a graduated measuring glass or receptacle C, adapted to contain about a gallon of the solution. The glass C is provided with a discharge-pipe G, with cock *g*. A second tank B is adapted to contain a secondary or precipitating solution, said solution being of a metal or salts of a metal or compounds thereof soluble in a cyanid solution.

The tank B is provided with an outlet-pipe F, having controlling-cock *f*, leading to a smaller graduated measuring-glass D, provided with a discharge-pipe H and cock *d*.

By means of the measuring-glasses C and D and the controlling-cocks of the communicating pipes, respectively, the amount of the flow from the tanks is regulated so that the proper proportions of the solutions enter the mixing vessel or receptacle J, which is pref-

erably of glass or other transparent substance, this proportion being definitely determined by the effect of the operation.

L designates a barrel consisting of a casing having a closed top forming an upper bearing for a vertical shaft M, the lower bearing being in the bottom of the casing. The said shaft is provided with the blades or beaters N, forming agitators and extending to nearly the edge of the barrel, and has on its upper end the bevel gear-wheel O, meshing with a bevel-gear P on a shaft Q, having suitable journal-bearings R on said closed top and provided with a driving-pulley S, adapted to receive power from any suitable source or motor for rotating said shaft M and said blades N. The barrel L is also provided on its outer surface with a glass gage T, communicating with the interior thereof, so that the height of the solution in the same can be readily known at all times, and a cock U is provided, so that at any time a quantity of the mixture may be drawn off for testing or any purpose desired.

As the two solutions intermingle while passing into the receptacle J and barrel L, a chemical reaction takes place, hastened by the agitation caused by the rotating blades, the metals in the primary solution being precipitated by such reaction.

The solution from the barrel is allowed to enter the settling-tank W through the pipe V and cock *v*, where in a few hours the precipitates have settled sufficient so that the clear solution can be drawn off into the tank X and can be fortified with additional cyanid and used over again.

The precipitates can be immediately dried, pressed, and melted into bullion or the gold or silver can be separated by any of the well-known processes before melting.

By means of the apparatus constructed and arranged as described a great saving in time and cost of extracting the metal is attained, and there is no waste of the solution, the same being used again and again, if desired.

In another pending application, filed by me August 6, 1902, Serial No. 118,656, a similar apparatus to that herein is shown, but not

claimed, said application being for process of extracting metals by a cyanid solution and not for an apparatus.

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

1. In an apparatus for the purpose set forth, the combination of primary and secondary solution tanks with graduated measuring-
10 glasses, a mixing-receptacle, an agitating device adapted to receive the mixture of said solutions from said mixing-receptacle, a settling-tank, and a clear-solution-receiving tank, substantially as described.

15 2. In an apparatus for the purpose set forth, the combination of a primary-solution tank provided with a measuring-glass, with a secondary-solution tank having a measuring-glass, a mixing vessel adapted to receive the
20 flow from said measuring-glasses, and a bar-

rel having an agitating device therein and adapted to receive the mixed solution from said mixing vessel, substantially as described.

3. An apparatus for the purpose set forth, consisting of primary and secondary solution
25 tanks, each provided with discharge-pipes with controlling-cocks, and measuring-glasses, a mixing vessel adapted to receive the flow from said measuring-glasses, a barrel, with rotatable blades therein, and having
30 a glass gage on the outer face thereof, and a settling-tank adapted to receive the discharge from said barrel; said parts being combined substantially as described.

In testimony whereof I have affixed my sig-
35 nature in presence of two witnesses.

JAMES A. OGDEN.

Witnesses:

RAY D. HUBBARD,
MILTON L. BALDY.