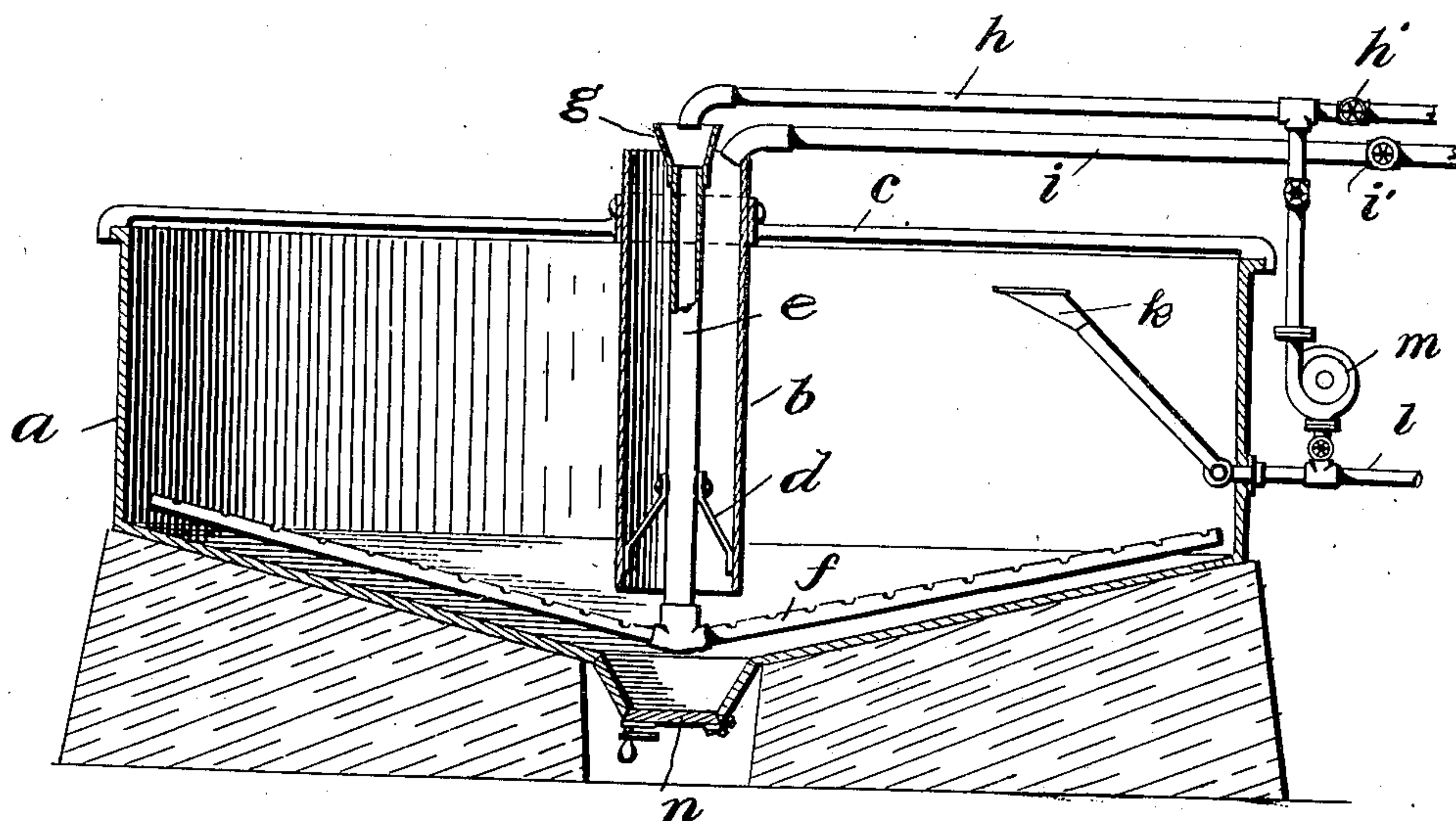


No. 886,900.

PATENTED MAY 5, 1908.

C. E. D. USHER.
SLIMES TREATMENT.
APPLICATION FILED MAY 25, 1907.



WITNESSES

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SLIMES TREATMENT.

No. 886,900.

Specification of Letters Patent.

Patented May 5, 1908.

Application filed May 25, 1907. Serial No. 375,758.

To all whom it may concern:

Be it known that I, CHARLES EDWIN DRAPER USHER, a subject of the King of Great Britain, and a resident of Johannesburg, in Transvaal, South Africa, have invented certain new and useful Improvements in Processes of Treating Slimes, of which the following is a specification.

This invention relates to the wet treatment of finely comminuted ores, or slimes as they are generally termed, for the extraction of their metallic contents and particularly to the treatment of auriferous ores by cyanid; the principal object being to provide a cheap and quick process for this purpose whereby a very thorough contact of the solvent with the ore, with consequent high extraction, is effected.

Another object is to enable the several steps of solution, washing and drawing off of the liquids to proceed continuously without stoppages for settlement or otherwise and without transference of the slimes.

A further object is to avoid loss of metal by enabling the slimes to be more readily and completely washed than heretofore.

According to the present process the solvent solution or wash water is caused to percolate upwards through the slimes which latter are maintained in a uniform and practically constant state of diffusion throughout the suspending liquid, the rate of flow and manner of distribution of the solvent or wash being such as to maintain the slimes in suspension and yet allow the solvent or wash to collect in a clear state above the slimes, whence it may be withdrawn as desired.

In carrying the invention into effect the apparatus shown in vertical section in the accompanying drawing may be employed.

In the drawing, *a* indicates a circular vat preferably cylindrical in order that the solvent may rise therein at a uniform rate.

b is a hollow trunk supported by a cross beam *c*, the ends of which rest upon opposite sides of the vat *a*. Supported within the trunk as by brackets *d* is a vertically disposed pipe *e*, terminating at its lower end in a plurality of perforated arms *f* which are disposed parallel to the portion of the bottom of the vat with which they are in proximity. Two only of the arms *f* are shown, but obviously any desired number may be used. At its upper end, the pipe *e* terminates in a

funnel *g*, which is disposed below and is adapted to receive the solvent or wash water from the pipe *h*.

A pipe *i* for carrying slimes to the vat *a*, opens into the trunk *b* at the upper end thereof, such slimes passing downward through the trunk and out at the lower end thereof. The pipes *h* and *i* are provided with valves *h'* and *i'* for controlling the passage of liquid therethrough. A decanting pipe *k* of the usual type connects with an off-take pipe *l*, as shown. A pump *m* is connected to pipes *h* and *l* by valve controlled pipes as illustrated and serves as a means for returning the solvent or wash liquor from the vat back through the pipe *h*. The floor of the vat *a*, preferably slopes toward the center where it is provided with a discharge door *n* for discharging the contents of the vat.

In operation, the slimes introduced into the vat are maintained in suspension by the flow of the solvent or wash liquor introduced through the apertures in arms *f*. The flow of the solvent is started while the slimes are being introduced. The rate of feeding of the slimes is such as to permit the collection of a layer of clear liquor above them, which layer may, after a short time, be drawn off by means of the decanting pipe. The solvent is followed by wash water as is usual in cyaniding and finally the whole contents of the vat is discharged through door *n*.

I claim as my invention:—

1. The hereindescribed process of treating metalliferous slimes which consists in maintaining said slimes in a state of suspension by the upward passage therethrough of a solvent or wash liquid, at such a rate as not to materially disturb the homogeneity of the slimes and collecting the clear liquid above the slimes.

2. The hereindescribed process of treating metalliferous slimes which consists in maintaining said slimes in a state of suspension by the upward passage therethrough of a solvent or wash liquid, at such a rate as not to materially disturb the homogeneity of the slimes and returning the same for further percolation through the mass.

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

CHARLES EDWIN DRAPER USHER.

Witnesses:

ALFRED L. SPOOR,

WM. HILLMAN VINCENT.