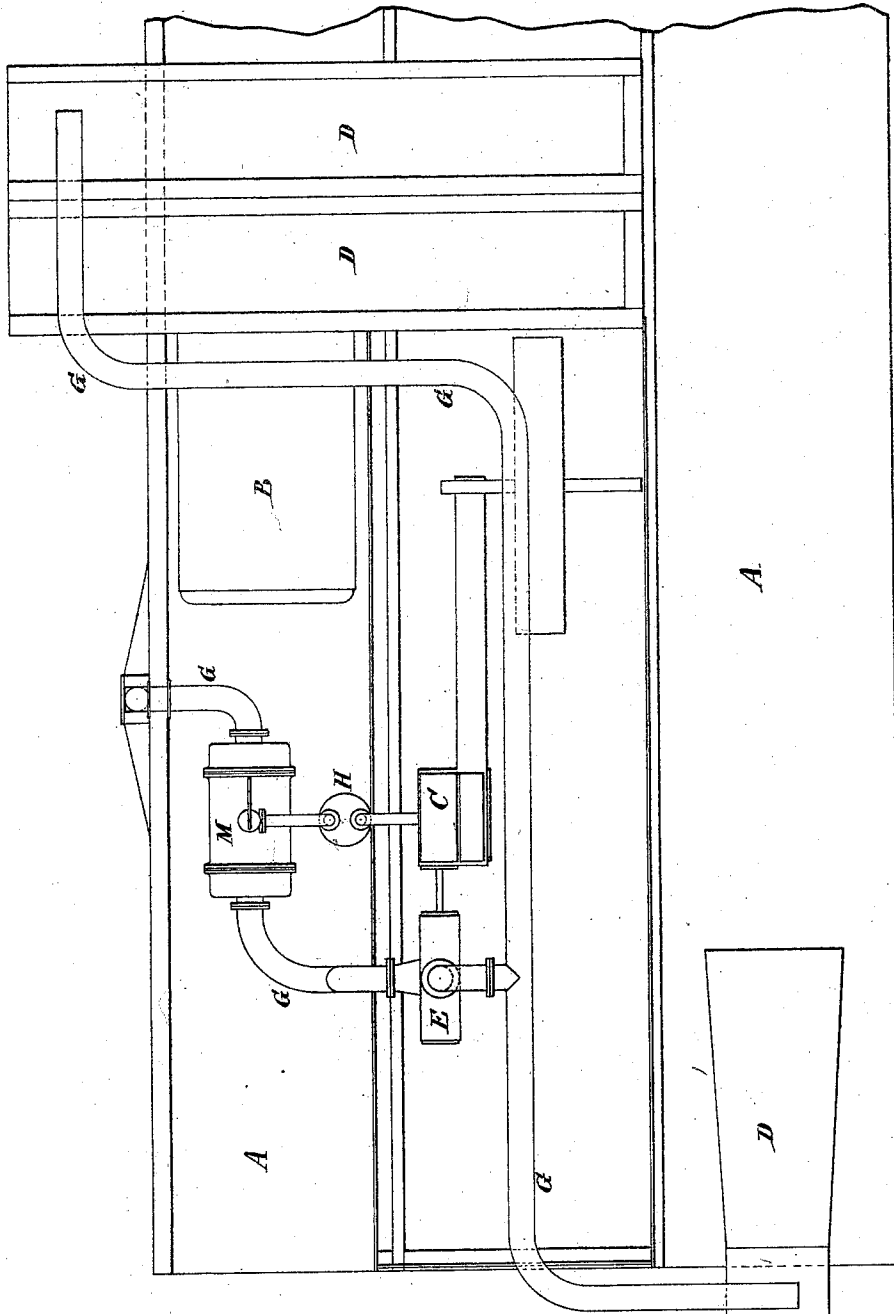


G. H. REYNOLDS.

Improvement in Apparatus for Washing Ore.

No. 131,374.

Patented Sep. 17, 1872.



Witnesses:

Arnold Hermann.
Wm C Dey

Inventor:

Geo. H. Reynolds
by his attorney, J. B. Peterson

UNITED STATES PATENT OFFICE.

GEORGE H. REYNOLDS, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND
CORNELIUS H. DELAMATER, OF SAME PLACE.

IMPROVEMENT IN APPARATUS FOR WASHING ORES.

Specification forming part of Letters Patent No. 131,374, dated September 17, 1872.

To all whom it may concern:

Be it known that I, GEORGE H. REYNOLDS, of New York, in the county of New York and State of New York, have invented a certain Improvement relating to Apparatus for Washing Ores and for analogous uses; of which the following is a specification:

It is frequently or generally the case that the water in the lakes and streams in mineral regions is very muddy or liable to produce incrustations in the steam-boilers, or is liable to corrode the boilers. In any such case it is important to provide a surface-condenser in which the steam may be cooled, and the distilled water therefrom be utilized again in the boiler.

I have devised an arrangement by which all the ordinary adjuncts of a surface-condenser are dispensed with in such situations, and the increase in the cost of the apparatus, by thus procuring fresh pure water, is trifling. It also realizes other important advantages. I arrange the surface-condenser in the channel-way, in which the water is conducted to the ore-washing machine.

There is always required a greater quantity of water for the washing than is necessary to effect the condensation of the steam. The pump or other means which brings the water to the ore-washer by this arrangement induces a circulation through the surface-condenser, and the heat imparted to the water in the act of condensing the steam increases the effect of the water in dissolving the matter to be removed—in other words, the warmed water acts more beneficially in the ore-washer than cold.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawing forms a part of this specification, and represents a plan view of a scow with my improved apparatus therein.

A is a scow, in which the apparatus is floated. B is a steam-boiler, and C an engine. The latter gives motion, by gearing, belting, or other suitable means, to one or more ore-washing machines represented by D. A pump, E, operated by a direct connection from the engine, raises the water from the river through ordinary pipes and controlling valves or gates, not represented, into the ore-

washers D. The pipe or passage through which the water is drawn from the river is marked G. The surface-condenser, which may be of any ordinary or suitable construction, is mounted in this passage, so that the water, in passing from the river to the washing machinery D, flows through the condenser. The latter is marked M.

It will be understood that in case the condenser is required to maintain a vacuum there must be an air-pump to remove the condensed water and the uncondensed gaseous matter. But as I have here represented it the condenser is only required to recover the water, and does not work under a vacuum. It is sufficient for this purpose to simply allow the water to flow out of the condenser as fast as it is formed and be seized by the feed-pump, not represented, and forced back again to the boiler. H is a feed-heater, through which the exhaust steam passes at atmospheric pressure on its way to the condenser M with the ordinary effect.

The apparatus may be worked upon the land instead of upon a floating structure, and the arrangement of the parts will be the same. The engine in such work is liable to operate quite irregularly. In case the water is taken from a reservoir at a higher level than the washing machinery D, the part E, which I have here described as a pump, may serve only as a meter or controlling means to regulate the quantity of the water admitted, so that it shall always be properly proportioned to the velocity of the engine.

It is important to maintain a regulating device of some kind, in order to avoid the waste of water while the engine is running slowly or stopped, and to insure an approximately-uniform degree of warming of the water.

I claim as my invention—

The arrangement of a surface-condenser, M, in the passage G, which conveys the water to a washer, D, so as to serve relatively to both the steam-engine C and washer D, as herein specified.

In testimony whereof I have hereunto set my hand this 6th day of August, 1872, in the presence of two subscribing witnesses.

GEO. H. REYNOLDS.

Witnesses:

WM. C. DEY,
ARNOLD HÖRMANN.