2 Sheets--Sheet 1.

J. W. VARNEY.

Machine for Saving Quicksilver.

No. 163,616. Patented May 25, 1875.

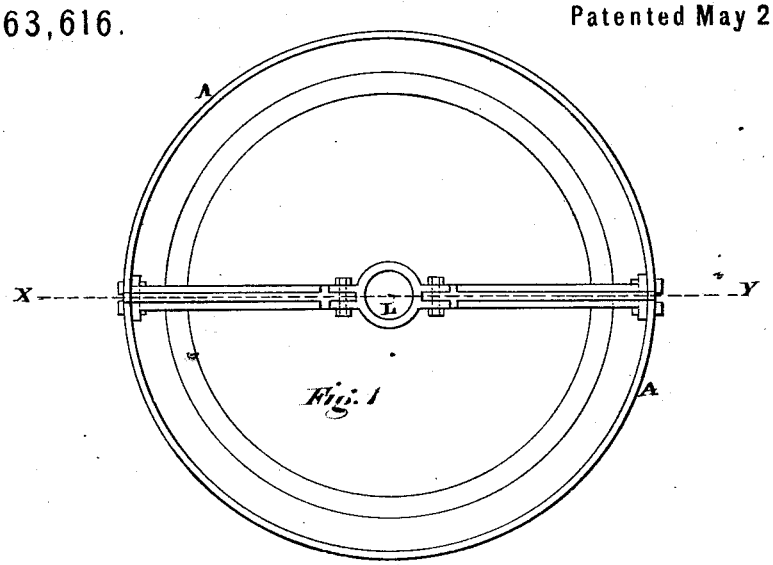


Fig. 1

Fig. 2

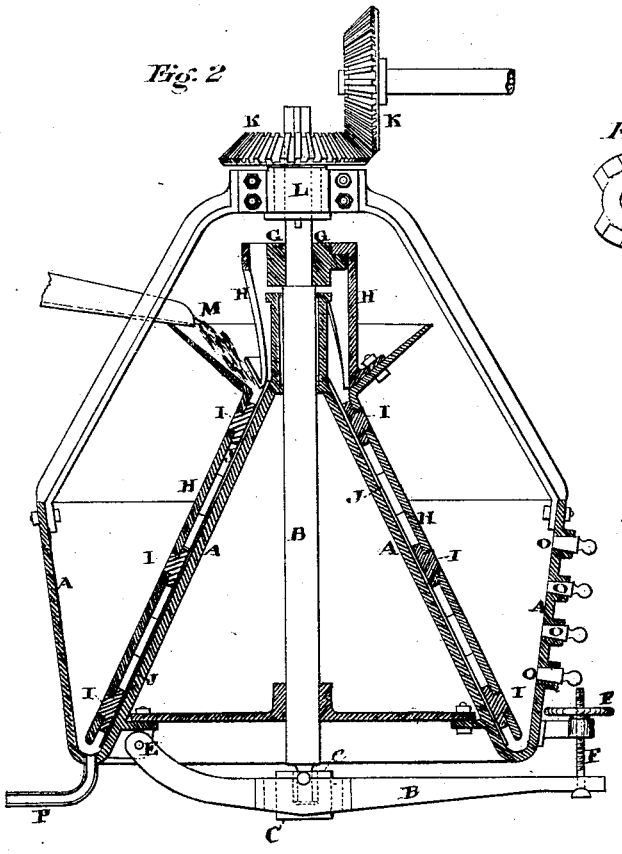
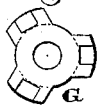


Fig 3



Witnesses:

John W. Parker.

John A. Wright

Inventor:

John W. Warner Varney.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

2 Sheets--Sheet 2.

J. W. VARNEY.

Machine for Saving Quicksilver.

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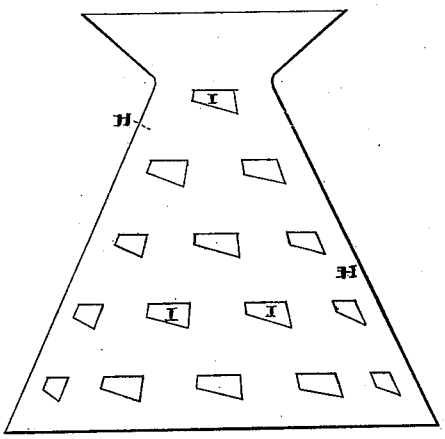
Fig 4

Fig. 5



Witnesses

John W. Parker

John B. Wright

Inventor

John Warner Varney

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

JOHN W. VARNEY, OF VIRGINIA CITY, NEVADA, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOHN B. HEREFORD, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR SAVING QUICKSILVER.

Specification forming part of Letters Patent No. **163,616**, dated May 25, 1875; application filed October 21, 1874.

To all whom it may concern:

Be it known that I, JOHN W. VARNEY, of Virginia City, State of Nevada, have invented a Machine for the Saving of Quicksilver, of which the following is a specification:

The object of my invention is to save the quicksilver contained in the tailings resulting from the reduction and amalgamation of gold, silver, or other ores after their discharge from the settlers or agitators.

It is a well-known fact, that during the amalgamating and grinding process in the amalgamating-pans, considerable quicksilver becomes ground into infinitesimally small globules, or, to use the term most generally applied, becomes floured. These globules also become coated with a black greasy scum, which effectually prevents them from reuniting. In this state the floured quicksilver will float readily upon water, and consequently will not settle, but flows off with the discharged tailings and is lost.

Now, I have discovered that if this scum is rubbed gently between two surfaces, the greasy covering is removed and the fine particles of quicksilver will have their affinity for each other restored, and this is the operation of my machine.

The machine is illustrated fully by the accompanying drawings, of which there are two, marked Sheet 1 and Sheet 2.

Figure 1, Sheet 1, is a top view or plan; and Fig. 2 is a vertical cross-section through X Y.

A is a circular pan, with a central cone cast on the apex of the cone, rising some distance above the top of the sides of the pan, and having a journal for the shaft. B is the shaft, standing vertically; it is supported at the lower end by an oscillating step, C. This step is held by the lever D, one end of which is pivoted at E, and the other end is raised or lowered by the screw and hand-wheel F. Keyed onto the top end of the shaft B is the driver G, also shown by Fig. 3, Sheet 1. This driver turns the conical muller H. The exterior surface of this muller is shown by Fig. 5, Sheet 2, showing the little dovetailed slots which are made to receive the shoes I I I, &c., one of which is shown by Fig. 4, Sheet 2. These shoes are to be made of rubber, wood, leather, or other material, as shall be found to best suit the purpose. They are arranged on the inside surface of the conical muller, as close together as possible, and still give the tailings a chance to run between them. The exterior of the cone of the pan is lined with copper of suitable thickness, J; the shoes on the inside of the conical muller rub against this copper surface. The shaft B is supported at the top by the journal L, and is driven by the gearing K K.

The operation of the machine is as follows: The tailings run in, as shown at M, Fig. 2, Sheet 1, and run down between the copper lining of the cone and the inside of the conical muller. In the bottom of the pan I intend to keep a large body of quicksilver, extending some distance above the lower edge of the muller. Now, the muller being in motion around the cone, the tailings, during their fall, get rubbed between the shoes and the copper lining of the cone, thereby removing the greasy coating from the floured quicksilver, and restoring its affinity to reunite with other particles, so that when the tailings are forcing their way through the body of quicksilver at the bottom of the pan, these little particles will join the main body and be retained, while the tailings go through, and finally leave the pan through the discharging-holes O O O. The quicksilver can be drawn off at any time through the pipe P.

I claim as my invention and discovery—

The combination of the tub A, with its central cone, the revolving conical muller H, with its rubbing-shoes I, the hollow shaft B, and the mechanism for revolving the muller, all constructed and arranged to operate substantially as described.

JOHN WORNER VARNEY.

Witnesses:

JOHN W. PARKER,

JOHN B. HEREFORD.