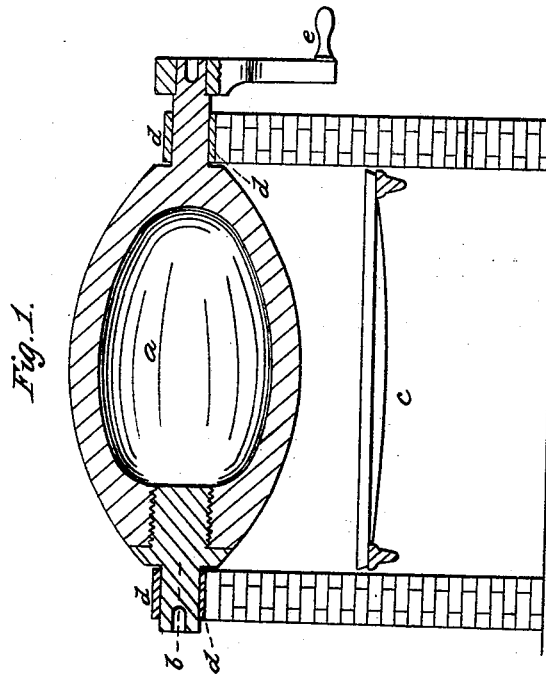
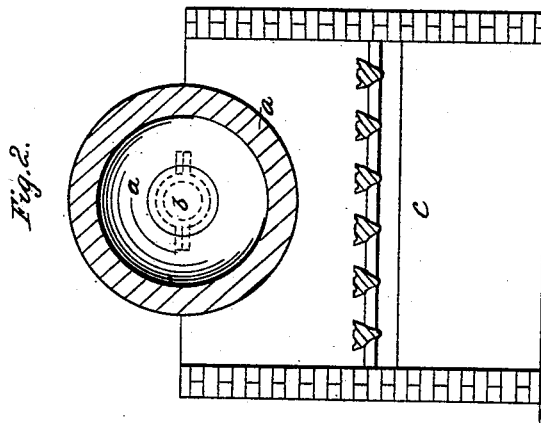


J. T. STAATS.

Amalgamator.

No. 53,194.

Patented March 13, 1866.



Witnesses:

Chas. H. Smith
H. C. Derrill Jr.

Inventor:

John T. Staats

UNITED STATES PATENT OFFICE.

JOHN T. STAATS, OF NEW YORK, N. Y.

IMPROVED AMALGAMATOR.

Specification forming part of Letters Patent No. 53,194, dated March 13, 1866.

To all whom it may concern:

Be it known that I, JOHN T. STAATS, of the city and State of New York, have invented, made, and applied to use a certain new and useful Improvement in Amalgamators for Gold, Silver, &c.; and I do hereby declare the following to be a full, clear, and exact description of the said invention, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is a longitudinal section, and Fig. 2 is transverse section of my improved amalgamator.

Similar marks of reference denote the same parts.

The nature of my said invention consists in exposing the pulverulent ore to the action of mercurial fumes and agitation with mercury in a closed vessel to which heat is applied externally, so as to thoroughly permeate the pulverized ore and cause the amalgamation of the metal with the mercury both in its solid and gaseous form, and thus more thoroughly remove the precious metal.

In the drawings, *a* is a vessel of iron of suitable size and strength. I prefer that it should be of an egg shape or double conoid, and mounted upon gudgeons or trunnions at the ends. One of these trunnions *b* forms the plug to the opening through which the ore and mercury are introduced. This plug is fitted in airtight, and is to be ground into its place, or otherwise made tight, so that no fumes of heated mercury may escape. I mount this vessel *a* over a furnace, *c*, or other heating apparatus, and I sustain said vessel in bearings *d d*, wherein it may be rotated by hand-power applied to the crank *e*, or otherwise.

The charge of pulverized ore and mercury is introduced into the vessel *a*, when the plug

b is removed and the vessel turned up on end. Then said plug is screwed in tight and the vessel *a* lifted and placed over the fire. I find it most convenient to lift the vessel *a* by a crane or tackle, and hooks may be provided taking holes in the ends of the axis or trunnions.

The heat applied to the apparatus vaporizes the mercury and causes it to penetrate the particles of ore, and the rotary motion given to the apparatus commingles the ore and mercury, insuring the amalgamation and abstraction of the precious metals.

Care must be taken not to get the vessel *a* too hot, or the pressure of mercurial fumes will be too great; and after the operation is completed the amalgamator is to be lifted from the fire and allowed to cool and the vapors to condense before the same is opened, or there would be a loss of mercury.

The contents of the amalgamator are to be washed to separate the earthy material from the amalgam.

I do not claim amalgamating ores with mercury by agitation; neither do I claim the employment of mercurial fumes or steam and mercurial fumes; neither do I claim a revolving cylinder for amalgamating ores.

What I claim, and desire to secure by Letters Patent, is—

The amalgamation of metallic ores in a closed vessel by the joint action of mercury, mercurial fumes, and agitation resulting from the rotation of such vessel, as specified.

In witness whereof I have hereunto set my signature.

JOHN T. STAATS.

Witnesses:

LEMUEL W. SERRELL,
J. E. SERRELL, Jr.