G. B. SIMPSON.

Amalgamating Gold and Silver.

No. 52,456. Patented Feb. 6, 1866.

FIG. 2.

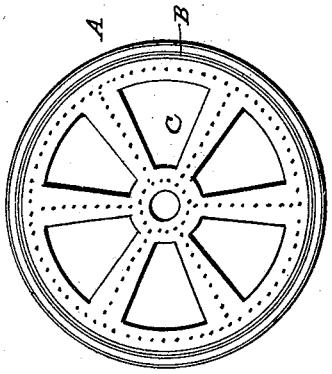


FIG. 3.

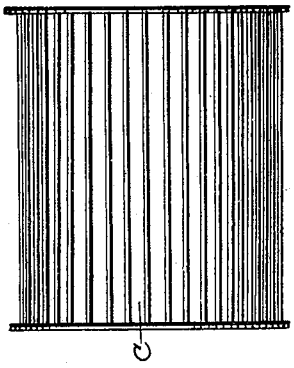
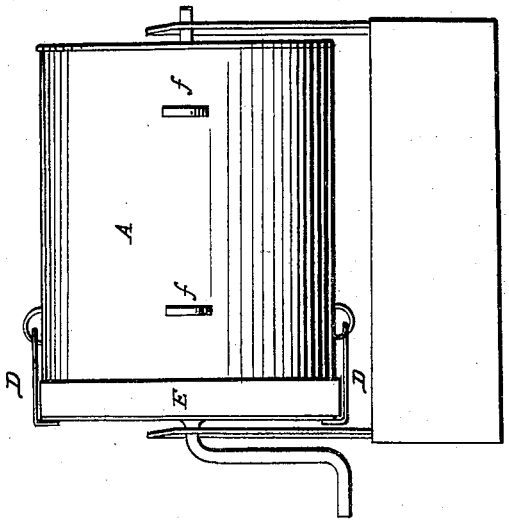


FIG. 1.



WITNESSES:

B. F. Phillips

G. H. Smith

INVENTOR.

Geo. B. Simpson.

UNITED STATES PATENT OFFICE.

GEORGE B. SIMPSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN AMALGAMATING GOLD AND SILVER.

Specification forming part of Letters Patent No. **52,456**, dated February 6, 1866.

To all whom it may concern:

Be it known that I, GEO. B. SIMPSON, of Washington city, District of Columbia, have invented a new and Improved Mode of Amalgamating Gold and other Precious Metals; and I do hereby declare the following is a full and exact description thereof, reference being had to the model, accompanying drawings, and the letters of reference made thereon.

The nature of my invention consists in a rotating or revolving air-tight iron cylinder or boiler, with an interior iron wire coil, made and fashioned in all respects (the interior coil) like the side wheel of a steamboat, (Figs. 1, 2, and 3, and letters A A.)

Letter B, Fig. 2, represents the aperture between the inner surface and outer rim of one end of the cylinder or boiler.

Letter C, Figs. 2 and 3, represents a longitudinal section of the inner wire coil with rim and paddles, as above described.

Letters D D represent the fastenings upon the adjustable end of the cylinder or boiler to hold it in position.

Letter E represents the adjustable end.

Letters *f f* represent the handles by which the cylinder or boiler may be taken from or placed over the furnace.

The cylinder, boiler, or vessel may be made of sheet-iron, boiler-iron, cast-iron, or other metal, with or without longitudinal shelves on the inner side.

The object of my invention is to amalgamate gold and other precious metals with greater ease and certainty than is now done.

The adjustable end of the cylinder or boiler is taken out, any given quantity of quicksilver is put into the cylinder, and any given quantity of finely-pulverized ore is also put into the same cylinder or boiler, when the cylinder is closed air, water, and mercury tight by inserting the adjustable end and adjusting the fastenings, after which the cylinder is, by the well-known process of derrick, rope, chain, and tackle, placed over a furnace of fire, and the temperature of the quicksilver raised to a degree of vaporization, if necessary, the cylinder with its interior mass of quicksilver and pulverized ore being rotated or revolved at the same time, so that by the rotation the interior masses will fall upon the wire coil or wheel, breaking and diffusing themselves uniformly throughout the interior surfaces of the cylinder or boiler and coil, thus rendering it apparently impossible for a particle of metal to escape contact and amalgamation with the quicksilver or other liquid metal. This done, the cylinder is taken from the furnace by the derrick apparatus, swung round, and after a slight cooling immersed in a bath of cool water, for the purpose of condensing the quicksilver again, after which the entire mass is dumped from the cylinder into another water-bath, where the dust is washed off, the quicksilver strained, leaving the amalgam. This accomplished, and the quicksilver is ready for use again. Thus onward and forward in one continuous round of use indefinitely, and the work is complete.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. The rotating closed vessel A, in combination with the interior coil, C, or its equivalent.

2. The vessel A, with removable end E and interior coil, C.

3. The closed vessel A, in combination with suitable devices for lifting the same to and from the fire, substantially as described.

4. The amalgamation of gold and other precious metals by immersing finely-pulverized ore in heated mercury by means of a rotating vessel and internal agitator or stirrer, substantially as described.

GEO. B. SIMPSON.

Witnesses:

J. F. CALLAN,

M. P. CALLAN.