(No Model.) 3 Sheets—Sheet 1.

T. SHANNON.

AMALGAMATOR.

No. 458,502. Patented Aug. 25, 1891.

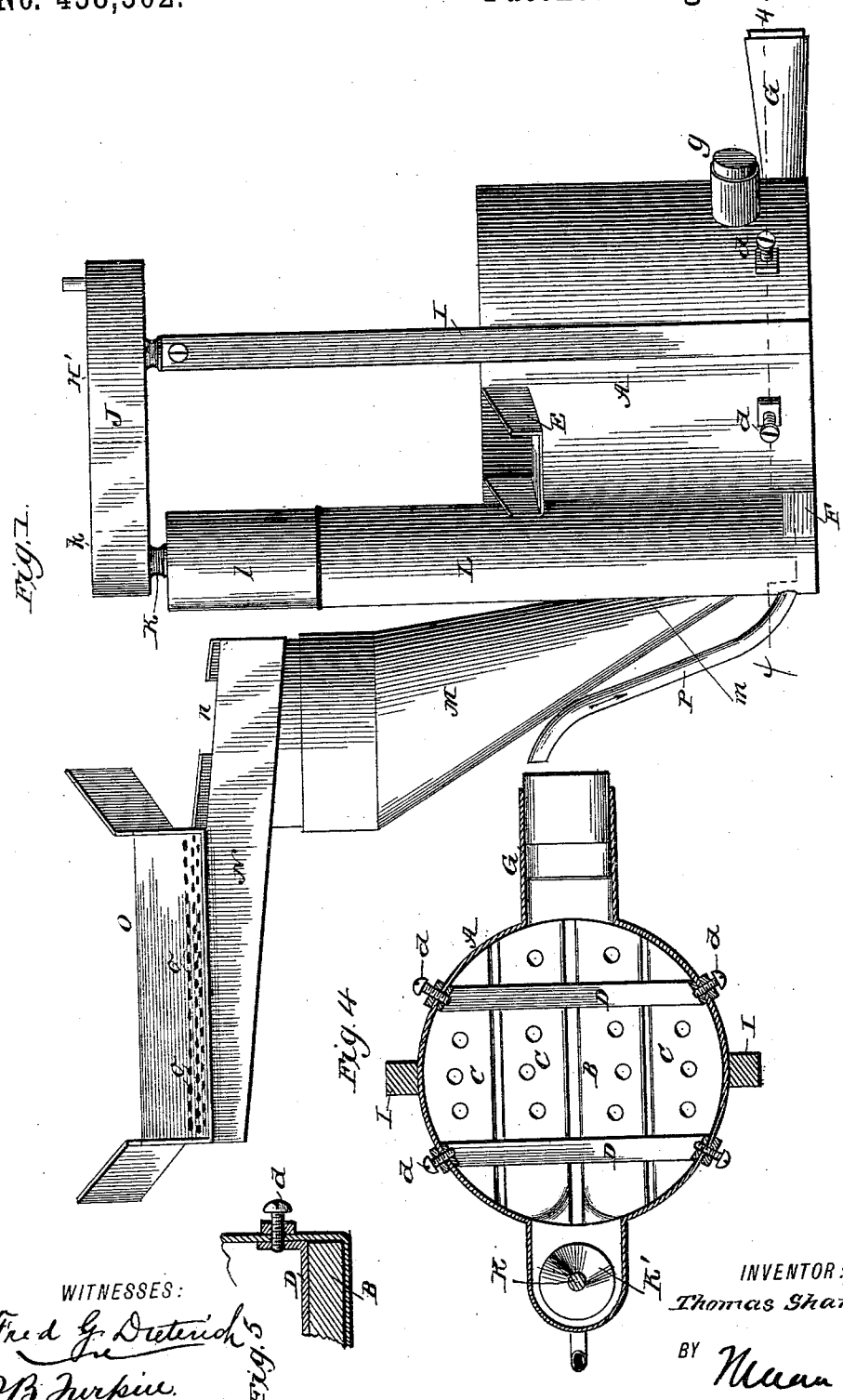


Fig. 1.

Fig. 4.

Fig. 5.

WITNESSES:
Fred G. Dieterich Jr.
P. B. Turpin.

INVENTOR:
Thomas Shannon
BY Munn & Co
ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 2.

T. SHANNON.

AMALGAMATOR.

No. 458,502. Patented Aug. 25, 1891.

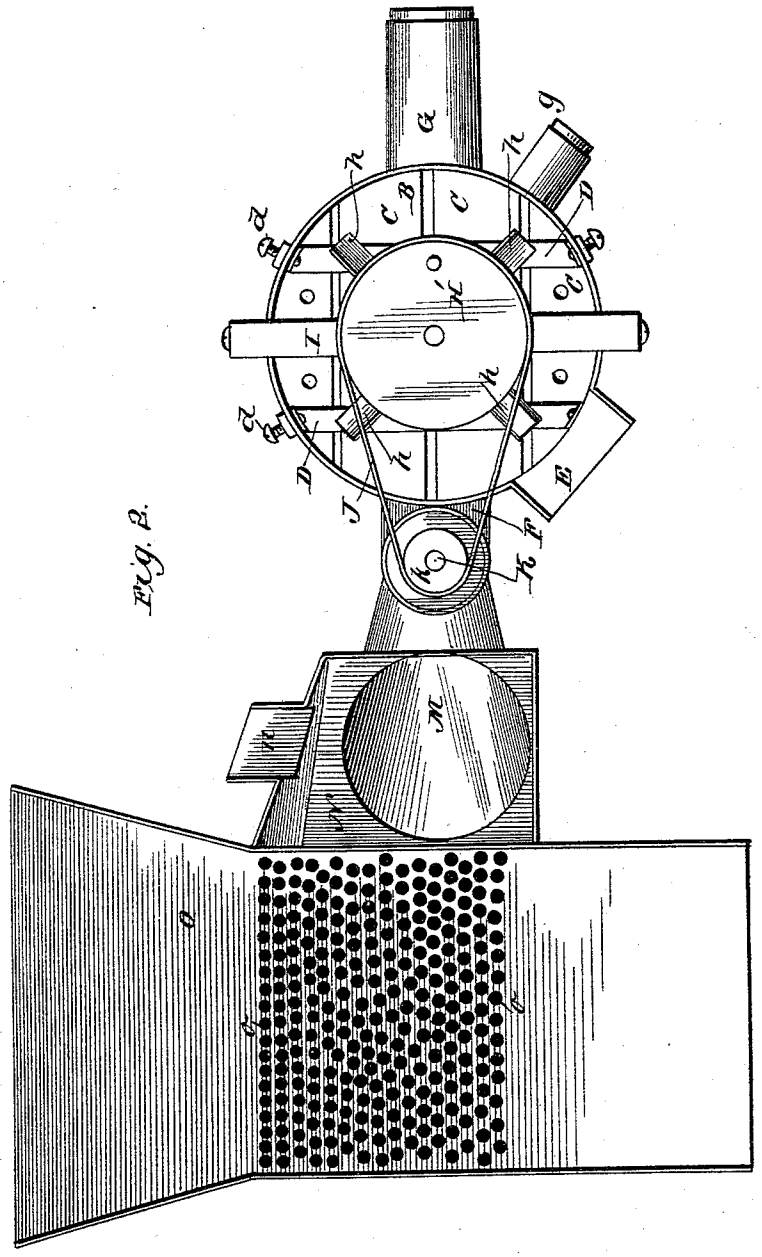


Fig. 2.

WITNESSES:
Fred G. Dieterich
R. B. Turpin.

INVENTOR:
Thomas Shannon.
BY Munn & Co
ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 3.

T. SHANNON.

AMALGAMATOR.

No. 458,502. Patented Aug. 25, 1891.

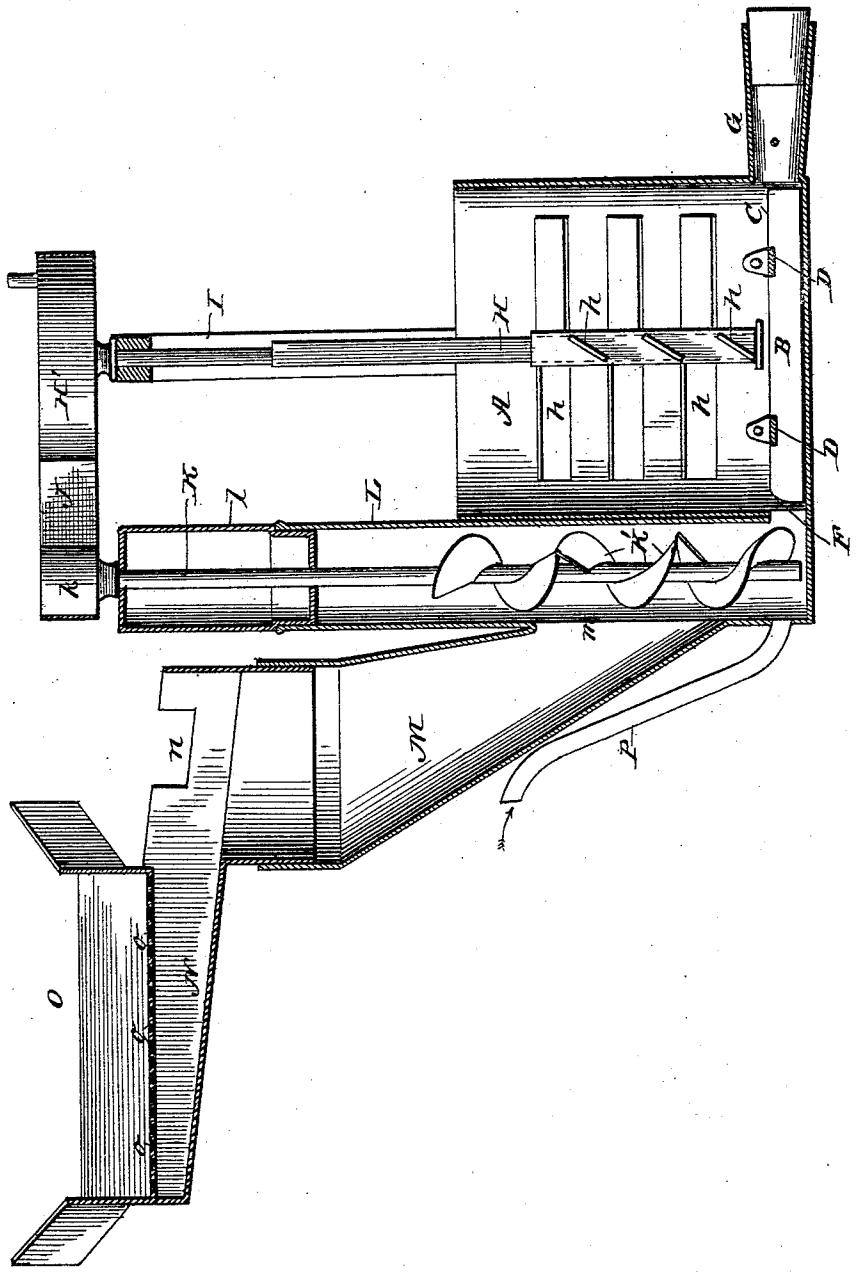


Fig. 3

WITNESSES:
Fred G. Dieterich
P. B. Turpin

INVENTOR:
Thomas Shannon
BY Munn & Co
ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THOMAS SHANNON, OF WHITEWOOD, SOUTH DAKOTA.

AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 458,502, dated August 25, 1891.

Application filed August 1, 1890. Serial No. 360,714. (No model.)

To all whom it may concern:

Be it known that I, THOMAS SHANNON, of Whitewood, in the county of Lawrence and State of South Dakota, have invented a new and useful Improvement in Amalgamators, of which the following is a specification.

My invention is an improvement in apparatus for the saving of gold, being in the nature of an amalgamator of the class commonly known as "mercury" amalgamators; and the invention consists in certain novel constructions and combinations of parts, as will be hereinafter described, and pointed out in the claim.

In the drawings, Figure 1 is a side view, Fig. 2 a top plan view, and Fig. 3 a vertical longitudinal section, of my improved apparatus. Fig. 4 is a cross-section on about line 4 4 of Fig. 1, and Fig. 5 is a detail sectional view, all of which will be described.

The amalgamating-vessel A is provided with the false bottom B, formed, preferably, of cross-slats C, separated to form spaces between them for the quicksilver and amalgam. This bottom C is removable, being held in place by the retaining-bars D, which extend above it and are secured by the screws *d*, turned through the amalgamating-vessel from the outside. These screws *d* may be conveniently removed to permit the removal of the bottom, as may be desired. At the upper end of vessel A, I provide the outlet-spout or discharge E for the sand, water, and other waste which passes up after the precious mineral has been separated. At its lower end the vessel A has the inlet or infeed opening F, through which the pulp, &c., is fed, so that the ore will be introduced directly in contact with the quicksilver in the bottom of the vessel A. This vessel A has an outlet G at its bottom, which is suitably plugged and may be opened to draw off the amalgam. Above this opening G, and preferably just above the mercury-line, I provide the vessel A with an opening *g*, suitably plugged. In operation the water, pulp, &c., above the mercury may be drawn off through this opening *g* prior to the withdrawal of the mercury and the amalgamated precious metal. The agitator or stirrer H is supported to turn within the vessel A and is provided above the mercury-line with arms *h*, which operate to disintegrate the pulp rising through the mercury and so separate its particles as to insure the deposit of practically all the gold or silver. I support the shaft of this stirrer in bearings in a frame I and provide it with a pulley H′, geared by belt J with the pulley *k* of shaft K. This shaft K operates in the feed-tube L, which is arranged alongside of the vessel A and communicates at its lower end with the said vessel A through the inlet-opening F, as shown. The shaft K is provided at its lower end with a screw conveyer K′, and is journaled in a tubular cap or top *l*, fitted in the upper end of the feed-tube, as shown.

Alongside of the feed-tube I arrange the hopper M. This communicates at its lower end with the feed-tube at a point *m*, about opposite the upper end of the screw-conveyer K′, so that the ore-pulp, &c., discharged by the lower end of the hopper will be fed by the screw conveyer forcibly down to the feed-opening F. At its upper end the hopper has a receiving pan or box N, which inclines upward from the mouth of the hopper, and is provided at its lower end with a spout *n*, from which water may discharge when the hopper is full. The pan is arranged below the flume O, a section of which is shown, and this flume has its portion directly above the pan N formed with openings *o*, through which the mineral particles will pass into the pan N, and thence into the hopper, the feed-tube, and the amalgamating-vessel, as will be understood. These openings may preferably be provided by perforating the bottom of the flume, as shown, or by providing a slotted opening in the bottom of the flume.

In operation a small quantity of the water flowing down the flume will pass out through the openings *o*, producing a down current at such point which will operate to carry the metals, ores, &c., moving down the bottom of the flume, through the openings *o* into the pan N, down which they will pass to the mouth of the hopper. The water is supplied by means of a pipe P, leading into the feed-tube L near the bottom thereof, the discharge of the water at such point operating to aid the screw conveyer in forcing the pulp, &c., into the mercury-chamber and serving to loosen up the mass, so that all the precious-mineral particles will be subjected to the action of the mer-

cury. In operation the mineral particles pass from the flume to the pan N, thence successively to the hopper, feed-tube, and mercury-chamber, being amalgamated in the latter. When it is desired to withdraw the amalgamated mercury and precious mineral, the bottom is removed and the contents of the vessel A drawn off through the openings, before described.

Having thus described my invention, what I claim as new is—

The combination, in an amalgamator, of the vessel A, the removable bottom, the retaining-bars D, arranged above the said bottom, and the screws *d*, passed from the outside through the vessel and securing the retaining-bars D, all substantially as and for the purposes set forth.

THOMAS SHANNON.

Witnesses:
JOHN C. ECCLES,
CHAS. W. OAKES.