2 Sheets--Sheet 1.

L. HINCKLEY.

Amalgamator.

No. 159,759. Patented Feb. 16, 1875.

Fig. 1.

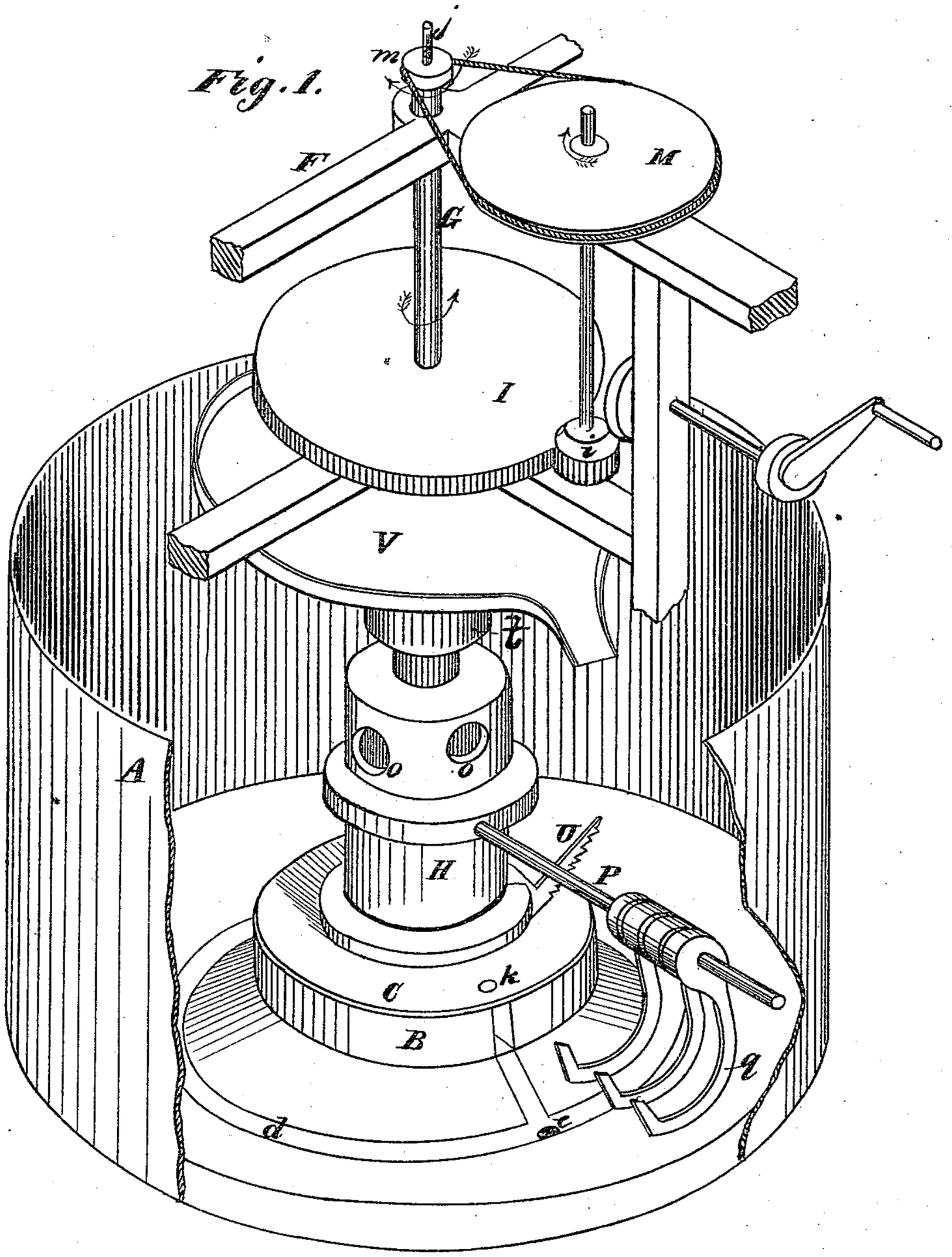
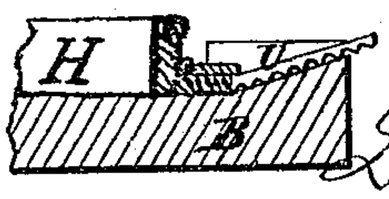


Fig 1a



Witnesses

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2 Sheets--Sheet 2.

L. HINCKLEY.
Amalgamator.

No. 159,759. Patented Feb. 16, 1875.

Fig. 2.

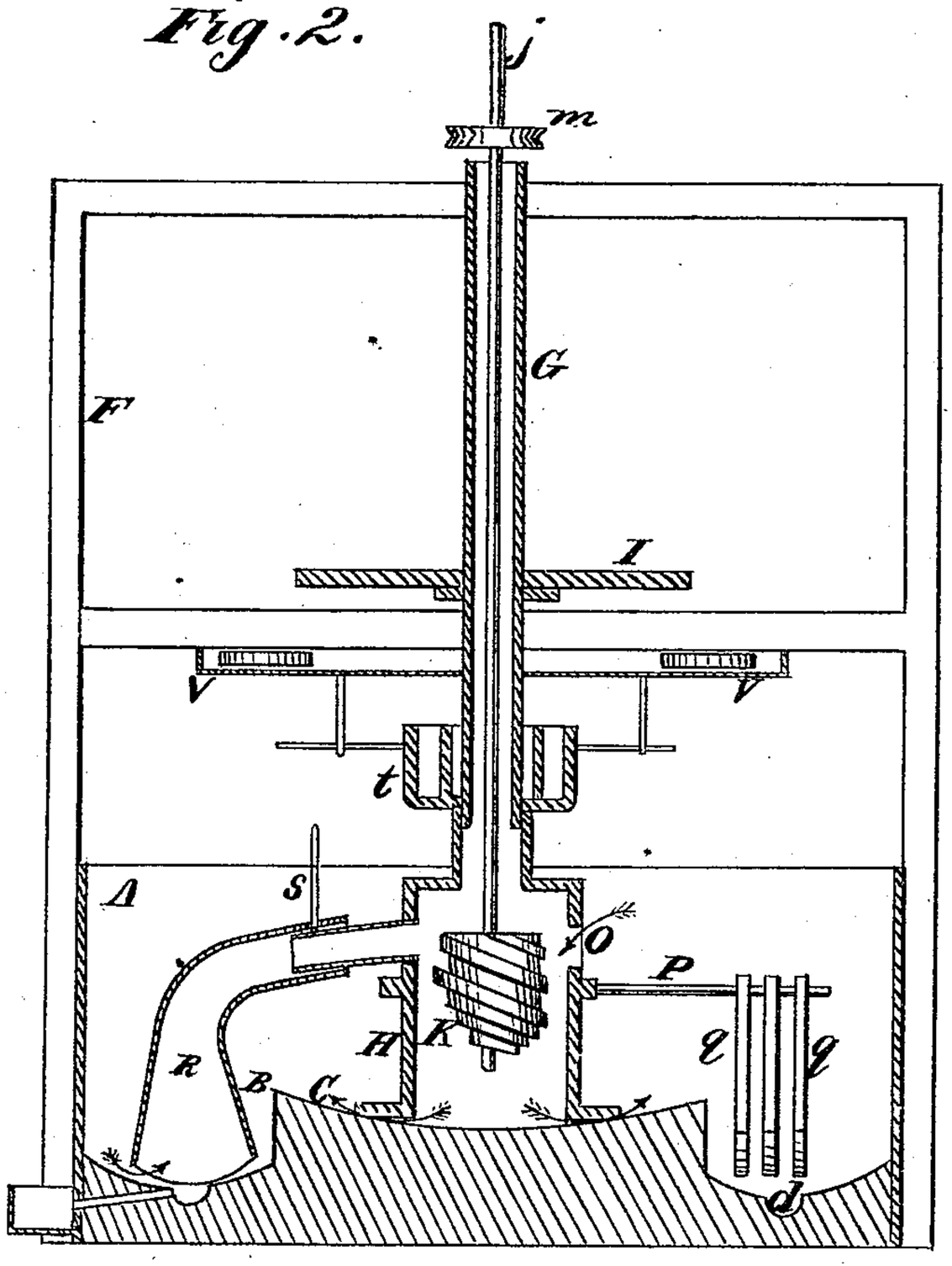
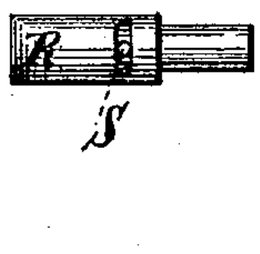


Fig. 2a.



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UNITED STATES PATENT OFFICE.

LAFAYETTE HINCKLEY, OF VIRGINIA CITY, NEVADA.

IMPROVEMENT IN AMALGAMATORS.

Specification forming part of Letters Patent No. **159,759**, dated February 16, 1875; application filed November 10, 1874.

To all whom it may concern:

Be it known that I, LAFAYETTE HINCKLEY, of Virginia City, Storey county, State of Nevada, have invented an Improved Amalgamator; and I do hereby declare that the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvement without further invention or experiment.

My invention relates to an improved apparatus for treating ore or ore-pulp in order to amalgamate the gold and silver contained therein; and consists of a pan or vessel having the proper stirring devices and suction and forcing devices for obtaining and maintaining a circulation of the pulp against the amalgamated surface.

In order to more fully illustrate and explain my invention, reference is had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a perspective view of my apparatus with a portion broken away. Fig. 2 is a vertical section in elevation. Figs. 1ª and 2ª are details referred to.

A is a tub or vessel, similar to an ordinary amalgamating-pan. In the center of the bottom of this vessel is a raised circular portion, B, the upper surface of which is hollow or concave, so as to form a tray with sloping sides or rim, and this entire rim or sloping side is covered with a copper plate, C. The portion of the bottom of the pan between the raised portion B and the outer side is made concave, so as to provide an annular concave track around the portion B, and in the middle or lowest portion of this track I make a groove, *d*, which gradually descends or deepens from one side to a discharge-opening, *e*. A suitable frame, F, is constructed above the pan, and a hollow shaft, G, extends vertically down to the center of the chamber H. A hollow chamber, H, rests loosely upon the center of the tray B, so as to allow the pulp to be forced in a thin flat stream beneath the chamber H into the tray, and at its upper end the chamber H couples with the lower end of the hollow shaft G. This hollow shaft is rotated by a gear-wheel, I, and pinion *i*, so that it will have a slow rotation. A shaft, *j*, passes down vertically through the hollow shaft G, and has a broad-flanged screw, K, secured to its lower end inside of the chamber H. This shaft is rotated by a large pulley, M, which engages with a small pulley, *m*, on the upper end of the shaft, so that the shaft *j* will be rotated at a high speed in a direction opposite to the rotation of the hollow shaft G. In the upper end of the chamber H I make one or more holes, O, through which the pulp will be drawn to the interior of the chamber by the action of the screw, and forced in a thin stream below the chamber out upon the tray B. The chamber H has a short horizontal arm, P, extending out over the annular track, and this arm carries a number of loosely-attached hook-shaped scrapers, *q*, which drag upon the track, and keep the pulp stirred up.

For treating gold sands I employ a hollow horn-shaped scraper, R, the small end of which is attached to the upper end of the chamber H by a short section of pipe, which slips into the small end of the horn, and is kept in place by a pin, S, which is attached to the arm, and passes through a slot in the horn, thus providing a limited motion or swing for the lower end of the horn. When using this horn the holes O are stopped up, and the pulp is sucked upward into the chamber H through the horn, and as the lower end of the horn moves close to the bottom of the tank the sands will be drawn from the bottom. A saw, U, has one end loosely attached in any convenient way to the lower edge of the wall of the rotating chamber H, so that it will fall outward and scratch the amalgam on the surface of the sloping sides of the tray B, and keep it rough. V is a pan, which serves to catch the drip or waste of oil from the bearings above, and prevent it from getting into the tank.

The operation of my machine is as follows: The pulp being introduced into the tank, the chamber H and the screw K are set in motion. The screw will draw in the pulp through the openings O, and force it out underneath the chamber H in a thin stream against the amalgamated surface of the tray B. This operation is continued until the entire body of pulp has been passed over and over the amalgam-

ated surface and thoroughly amalgamated. The pulp passes from the tray B into the space between the raised center B and outer rim of the tub A through a hole, *k*, which leads from the bottom of the tray B, as shown in Fig. 1.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The vessel A, having the raised center B, forming a tray, with centrally-inclined amalgamated sides C, in combination with the chamber H, having holes O O, and the screw K, substantially as and for the purpose above described.

2. The vessel A, having its raised center B, and having the concave circular track with its gradually-descending central groove, *d*, and discharge-opening *e*, whereby the material being amalgamated is held in contact with the scrapers, substantially as and for the purpose described.

3. In combination with the chamber H and screw K, the loosely-attached hollow horn-shaped scraper R, substantially as and for the purpose above described.

4. The saw U, loosely secured at one end to the lower edge of the rotating chamber H, in combination with the tray B, substantially as and for the purpose described.

In witness whereof I hereunto set my hand and seal.

LAFAYETTE HINCKLEY. [L. S.]

Witnesses:

A. L. EDWARDS,

C. M. RICHARDSON.