T. T. ALLEN.

Ore-Washer.

No. 209,789. Patented Nov. 12, 1878.

Fig. 1

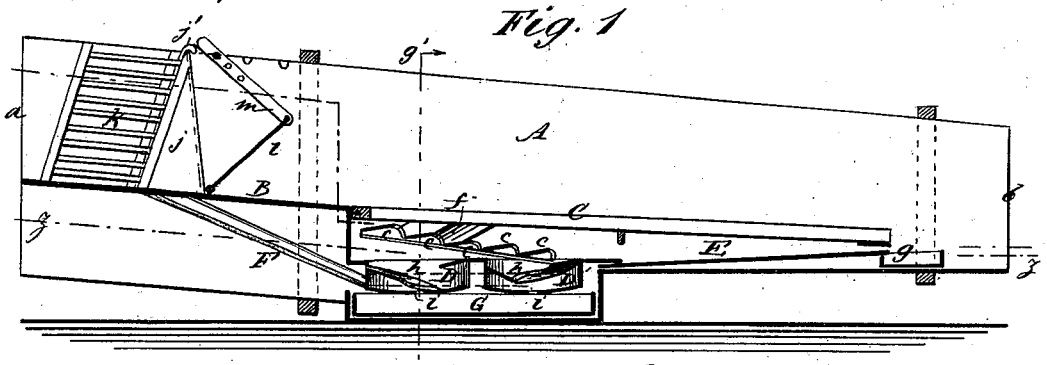

Fig. 2

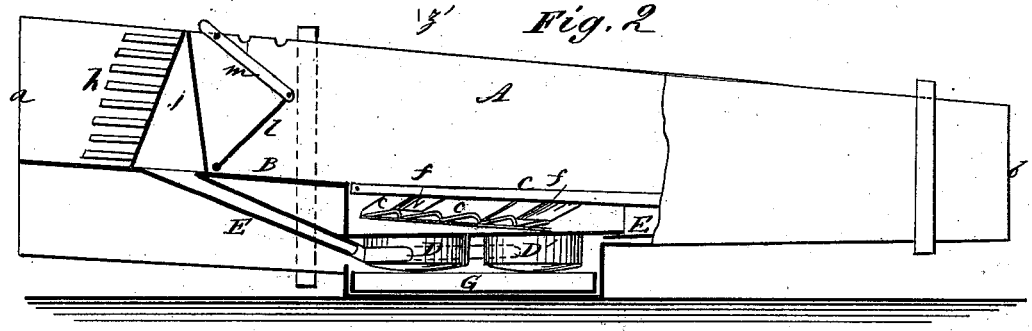

Fig. 3

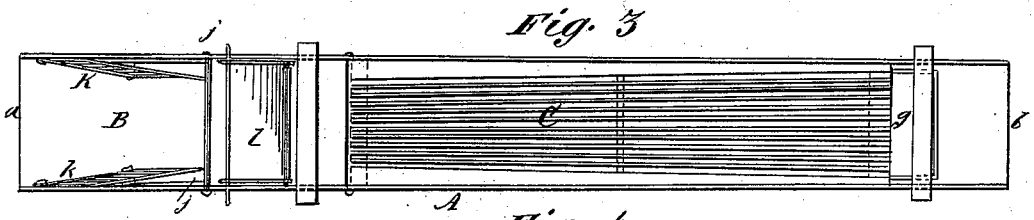

Fig. 4

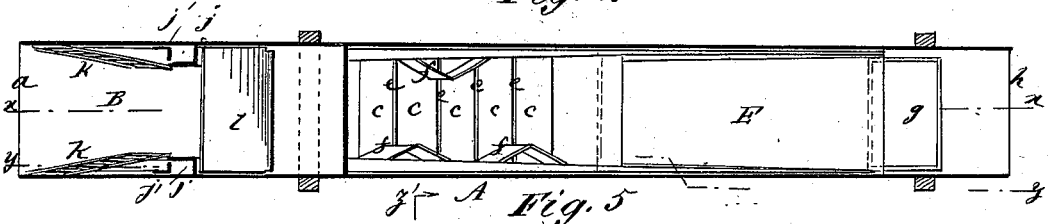

Fig. 5

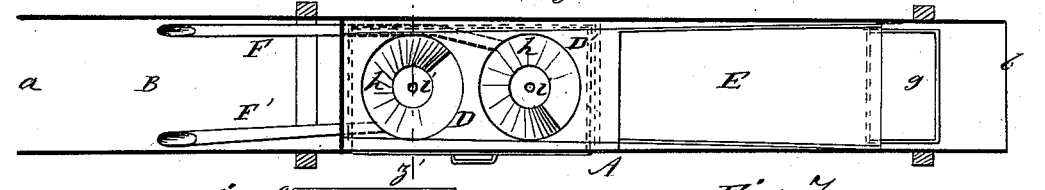

Fig. 6

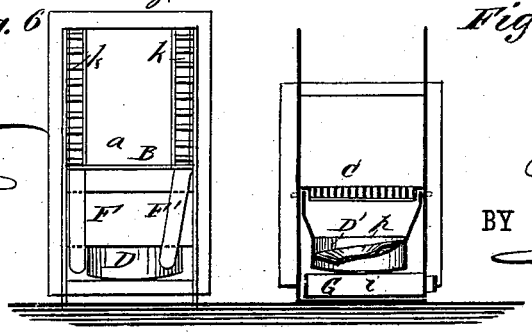

Fig. 7

WITNESSES:

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

THEOPHILUS T. ALLEN, OF DENVER, COLORADO.

IMPROVEMENT IN ORE-WASHERS.

Specification forming part of Letters Patent No. **209,789**, dated November 12, 1878; application filed May 8, 1878.

To all whom it may concern:

Be it known that I, THEOPHILUS T. ALLEN, of Denver city, in the county of Arapahoe and State of Colorado, have invented a new and Improved Gold-Washer, of which the following is a specification:

Figure 1 is a longitudinal vertical section of my improved gold-washer, taken on line *x x* in Fig. 4. Fig. 2 is a sectional side elevation taken on line *y y* in Fig. 4. Fig. 3 is a plan view. Fig. 4 is a plan view with the grating removed. Fig. 5 is a horizontal section taken on line *z z* in Fig. 1. Fig. 6 is a front-end elevation. Fig. 7 is a vertical transverse section taken on line *z' z'* in Figs. 1 and 5.

Similar letters of reference indicate corresponding parts.

The object of my invention is to provide a simple and effective gold-washer, which will operate automatically and may be easily cleaned.

It consists in an arrangement of gratings, sluices, riffles, and spiral jets, the construction and operation of which will be hereinafter described.

Referring to the drawing, A is a sluice, of which *a* is the receiving and *b* the discharge end, and B is the bottom, which is slightly inclined toward the discharge end, and adjoins a grating, C, of parallel rods, which extends toward the discharge end of the sluice, and in the same plane as the bottom B. Below the upper end of the grating C there is a series of riffles, *c*. The upper surface of each riffle is horizontal, or nearly so, and they are arranged one above the other, and between them are spaces *e*, through which the gold drops. Upon the upper surface of the riffles there are angular plates *f*, which are arranged in alternation on opposite sides of the series of riffles, to cause the water to take a zigzag course as it passes over the riffles.

The water that flows over the bottom B carries with it the sands which drop through the grating C, and are separated by the current of water passing over the riffles into heavier and lighter particles. The heavier particles drop through the riffles and are received by the pans D D', while the lighter and smaller particles move forward to the amalgamated copper plate E, where the gold is lodged, while the sand is carried forward and discharged with the water. Under the end of the amalgamated copper plate E there is a pan, *g*, into which the amalgamated gold is scraped when the washer is cleaned.

The pans D, which are shallow and circular in form, are each provided with an internal spiral flange, *h*, which reaches from the sides of the pan toward the center thereof, and gives the water which enters through the pipes F F' a rotary motion, which tends to hold the sand in suspension while the gold is allowed to settle.

The bottom of the pans are concave, and there is a screw-plugged aperture, *i*, in the center of each. Below the pans D D' there is a rectangular pan, G, into which the particles of gold and amalgam are allowed to drop from the pans through the screw-plugged apertures *i* when the washer is cleaned.

The pipes F F', which supply the pans D D', are connected with the sluice A at the receiving end, one pipe being placed at each side of the sluice, and connected with a narrow box, *j*, having a gate, *j'*, for controlling the amount of water supplied to the pans, and having a grating, *k*, for preventing the entrance of obstructions to the pipes F F'. A gate, *l*, is hinged to the bottom of the sluice in front of the boxes *j*, and may be raised up, so as to close the sluice more or less. The gate *l* is provided at each side with a pivoted bar, *m*, from which a pin projects, which is received by one of several notches formed in the upper edge of the sluice sides.

The manner of working my improved gold-washer is as follows: The gold sands and water are introduced into the head of the sluice and allowed to move forward over the grating. The heavier particles drop, as before described, while the lighter particles are carried forward and discharged at the tail of the sluice. The amount of water admitted to the pans D D' is controlled by the gate *j'*. At suitable intervals a part of the water is shut off, the grating C is raised, and the amalgam is scraped from the upper plate E into the pan *g*. The pans D D' are then cleared, one at a time, of sand, and the amalgam and particles of gold are removed through the screw-

plugged apertures *i*, and the amalgam from the pans *g* is placed with it, when the operation of washing may be proceeded with as before.

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

1. The pans D D′, having inwardly-projecting spiral flanges *h*, in combination with the sluice A, substantially as and for the purpose herein shown and described.

2. The combination, in a gold-washer, of the grating C, riffles *c*, and pans D D′, having the internal spiral flanges *h*, substantially as shown and described.

3. The combination of the angular plates *f* with the riffles *c*, as shown and described.

4. The sluice A, having side boxes, *j*, gates *j′*, gratings *k*, the pans D D′, pipes F F′, riffles *c*, and grating C, in combination, substantially as shown and described.

THEOPHILUS T. ALLEN.

Witnesses:
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