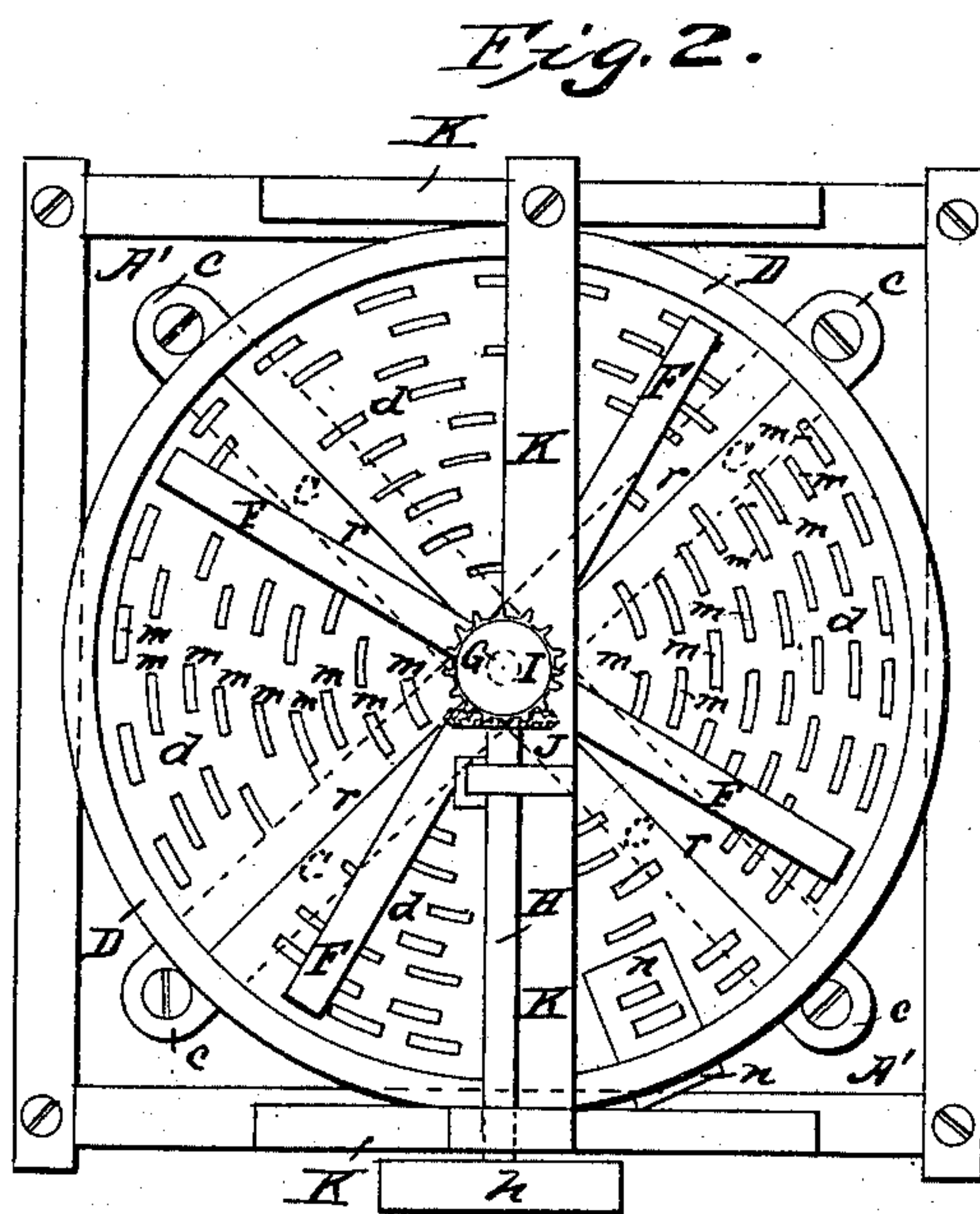
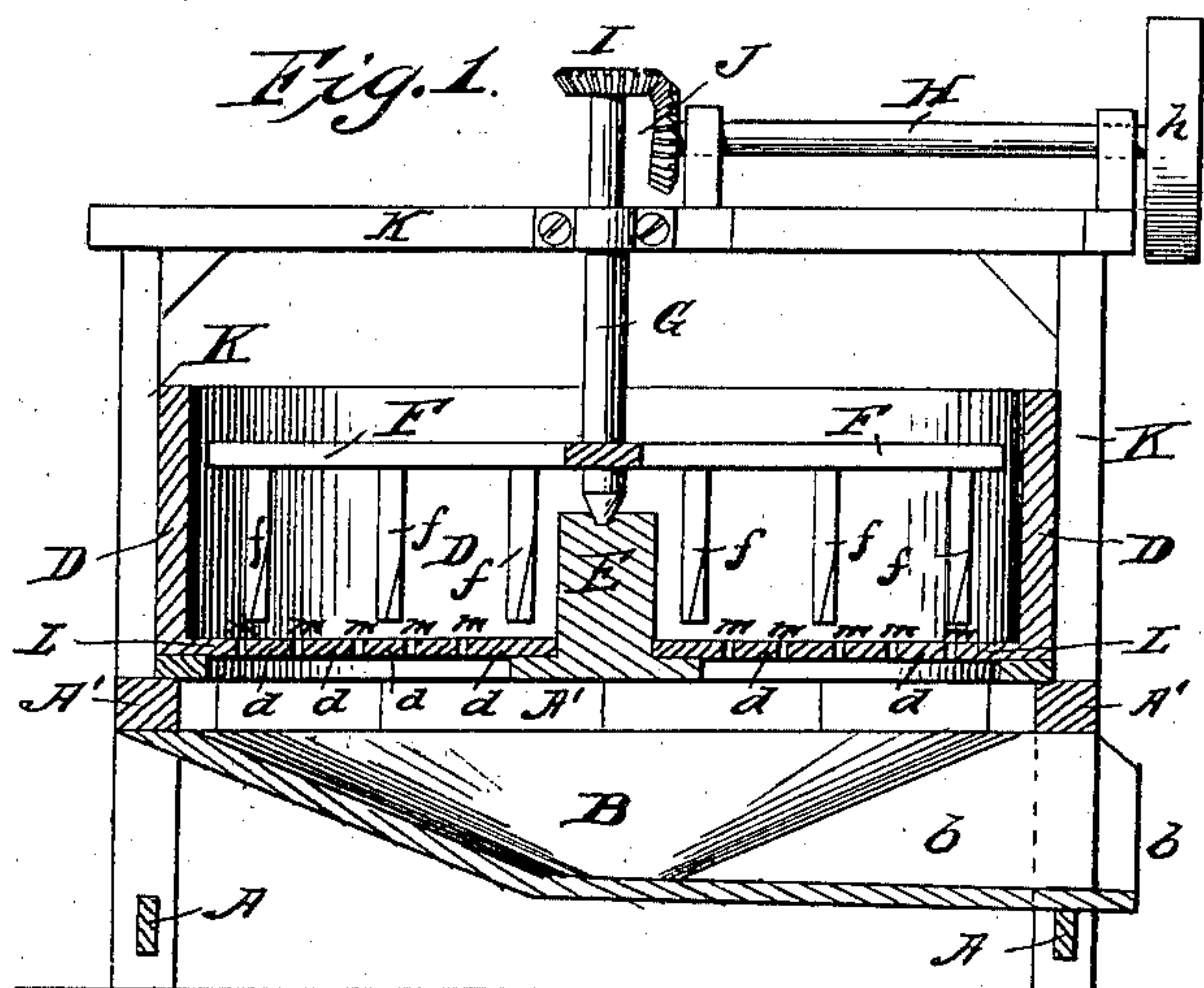


I. B. COX.

APPARATUS FOR DISINTEGRATING GRAVEL CONTAINING GOLD, &c.

No. 80,606.

Patented Aug. 4, 1868.



Witnesses:

J. C. Keaton.
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I. B. COX, OF SAN FRANCISCO, CALIFORNIA.

Letters Patent No. 80,606, dated August 4, 1868.

IMPROVED APPARATUS FOR DISINTEGRATING GRAVEL CONTAINING GOLD, &c.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, I. B. Cox, of the city and county of San Francisco, and State of California, have invented a new and improved Machine for Disintegrating Cemented Gravel; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a vertical-axial section.

Figure 2 is a plan.

This invention relates to an improved machine, by means of which the compact gravel that abounds in and about the gold mines of California and elsewhere can be readily disintegrated, so that the gold which it contains may be separated from it.

The principle upon which this machine operates is that of subjecting the gravel to the combined action of friction and water, as covered by Letters Patent granted to me on the day of , 1868. The specific mechanical devices by which I accomplish this operation constitute the subject-matter of this application, and which I will now more particularly describe.

In the drawings, A A is the supporting-frame or table, and B is a hopper-shaped vessel attached to it, and provided with a spout, *b*, through which any water that might enter the vessel from above may be allowed to escape. The upper edge of this vessel is attached to the floor or platform A', of the frame A, and over the vessel the floor is cut away, leaving the vessel B open, and occupying the central portion of the platform.

Having thus constructed and connected the vessel B, and its supporting-frame, I place across the open vessel two or more bars, C C, bolting their ends to the upper surface of the platform A', as seen at *c c*, for the purpose of forming a support to the floor or bottom of the vessel in which the gravel is to be subjected to the operation of the water and friction. This vessel, seen at D, is a round hoop or tub, provided with a central cone, E, which is rigidly fixed to the cross-bars C C, to serve the purpose of a step for the operating-shaft. F is a rake, similar in construction and operation to a mash-rake, and rotating in the hoop D, being supported and actuated by a vertical shaft, G, which is stepped in the top of the cone E, and is rotated by a horizontal shaft, H, to which power is applied by a pulley, *h*, the two shafts being connected by bevel-gearing I J, and being supported by a frame, K, attached to the frame or table A.

The bottom of the tub D rests upon the cross-bars C C, and upon a rim or flange, L, which projects slightly inward from the lower edge of the walls of the tub. For the purpose of separating the finer from the coarser particles, it is provided with narrow curved slots, *m m m m*, arranged as shown in fig. 2. It is also provided with a door, *n*, directly over the mouth of the spout *b*, by which the coarser matters, pebbles, &c., may be removed from the tub. The rake F may be attached to the shaft G by a feather or spline, so that it can rise and fall while always rotating with the shaft, in order that it may ride easily over large blocks or masses of unbroken gravel.

The operation of this instrument is simple and efficient. The concrete gravel is broken into suitable pieces, and placed in the tub under the rake, and the tub is filled with water. The machine is then set in operation, and the rake grinding over the surface of the mass, or with its teeth *f f* penetrating among the mass and scraping it along over the floor of the tub, rapidly separates the particles of gravel, while the water dissolves and carries away the calcareous cement, and with it the particles of gold which are the object sought for. When the mass has been thoroughly reduced in this manner, the large pebbles, &c., may be removed by means of the trap-door *n*. These pebbles in general contain no gold, and are merely the worthless refuse of the process. The dissolved cement, with the fine disintegrated gravel which had been incorporated with it in the mass, after being carried through the slots *m m m*, into the vessel B, is ready to be subjected to the process of amalgamation.

For convenience in removing the floor *d* of the tub, it may be made in several pieces, in the shape of quadrants, sextants, &c., separated as shown by the radial lines *r r* in fig. 2.

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

1. The slotted bottom or floor *d*, of the tub D, when constructed in several independently-removable pieces, for the purpose specified.

2. The combination of the tub D, slotted floor *d*, rake F, shaft G, and receiving-vessel B, when the several parts are constructed to operate substantially as and for the purpose set forth.

The above specification of my invention signed by me, this sixth day of February, 1868.

I. B. COX.

Witnesses:

OTIS V. SAWYER,

JOHN C. ALVARADO.