J. H. WARD.

Ore Washer.

No. 10,090. Patented Oct. 4, 1853.

Fig. 1.

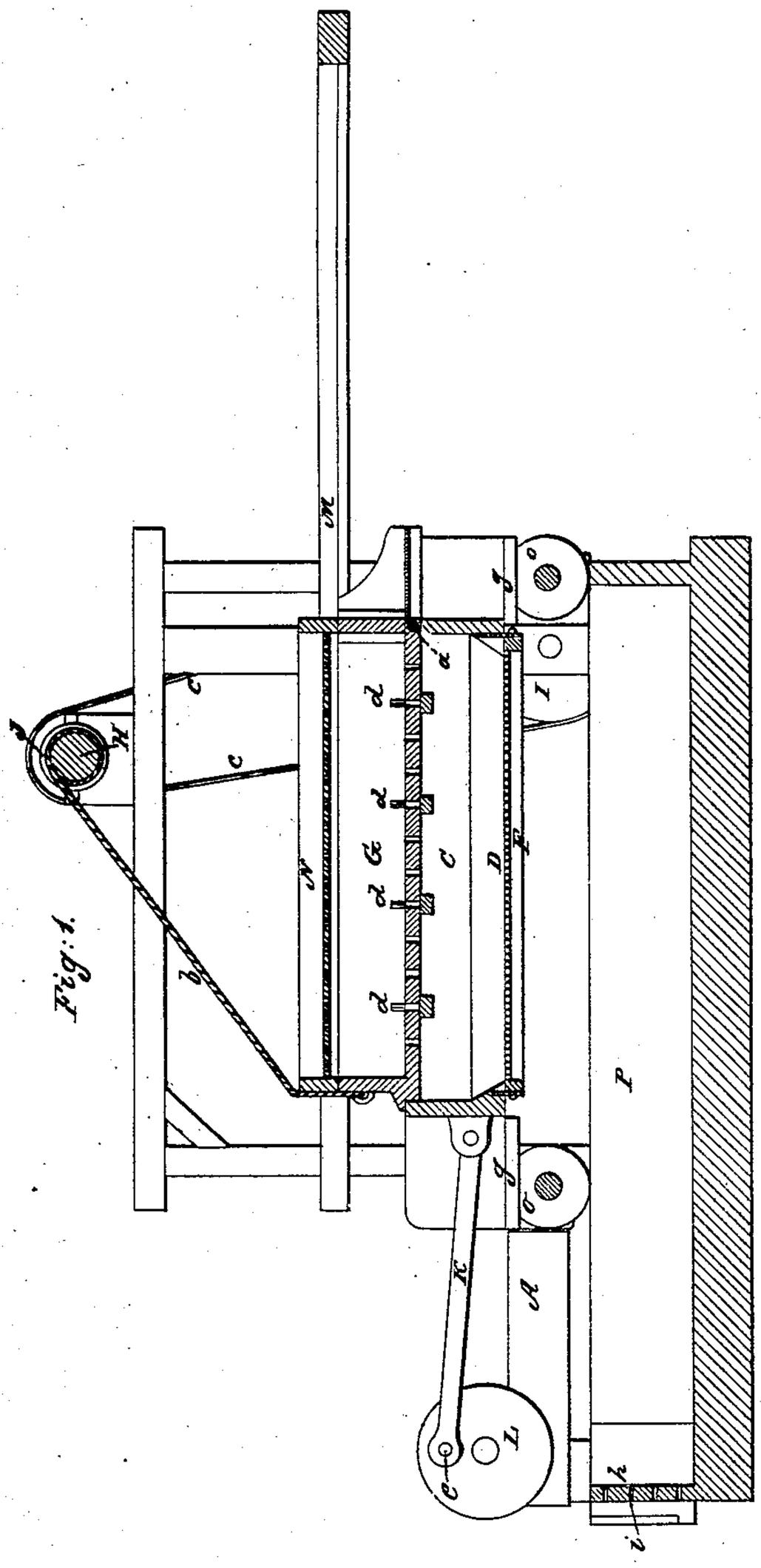
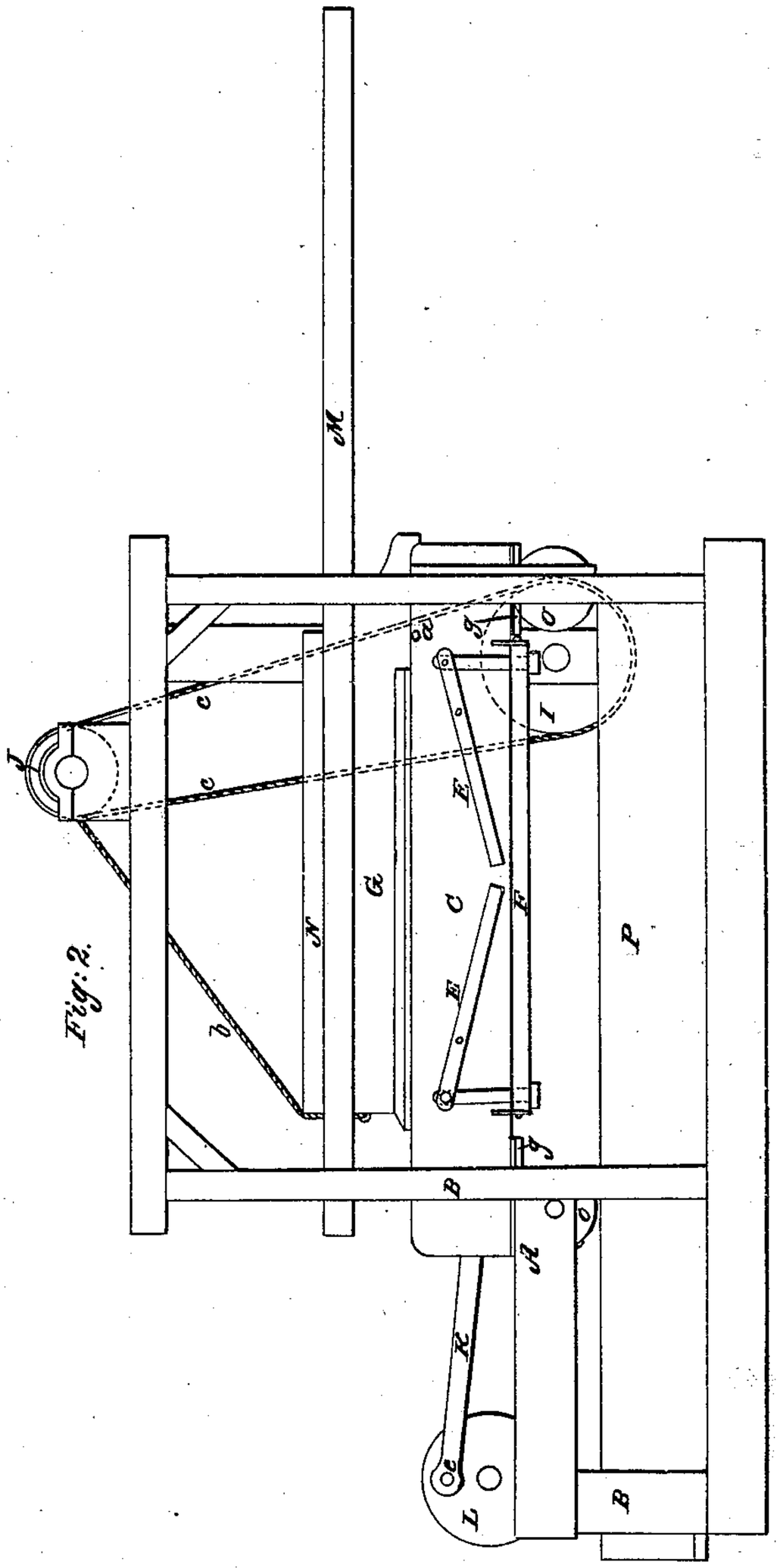


Fig. 2.



UNITED STATES PATENT OFFICE.

JOHN H. WARD, OF SONORA, CALIFORNIA.

GOLD-WASHER.

Specification of Letters Patent No. 10,090, dated October 4, 1853.

To all whom it may concern:

Be it known that I, JOHN HEADDINGTON WARD, of Sonora, in the county of Tuolumne and State of California, have invented certain new and useful Improvements in Machines for Washing and Separating Gold from other Impurities; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part thereof, in which—

Figure 1 represents, a longitudinal vertical section through the machine, and Fig. 2, a view from one of the sides.

Similar letters in both the figures, denote like parts.

The nature of my invention consists in the method of arranging the several parts one over the other, and operating them so arranged, as to perform the whole washing and separating process, in a compact machine, occupying very little space, easily transported, and at great saving of water.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawing.

On suitable ways A, attached to the frame B, is mounted the box C, provided with a hinged wire screen, or finely perforated, bottom D, which by means of the levers E, E, may be adjusted at greater or less inclination, so as to allow the heavier material to pass out of the machine, over its apron F. On top of this box C, is placed, the washing box G, which is hinged at *a*, to the box C, so that when it becomes necessary to empty the box G, into which the material is thrown in bulk, it can be done by means of the cord or chain *b*, attached to its rear end, and passing over a drum or windlass H, on top of the machine, which is operated by a hand wheel I (dotted lines Fig. 2)—a cord or chain *c* passing around said hand wheel, and a pulley J, on said windlass for this purpose. The bottom of the box G, is suitably provided with holes through which the gold and finer particles of impure matter may pass, to be acted upon again below. There are studs *d*, *d*, arranged in the bottom of the box G, which project upward, and have their sides which are in the line of its motion feathered or beveled off, so that the material in the box may rub against said studs, and thus by the attrition or friction between the material and the studs and in connection at the same time with the water the separating of the pure from the impure material may be facilitated.

The boxes C, and G, are connected, and are given a reciprocating motion, by means of the pitman K, connected to them, and a crank pin *e*, on the wheel L, which may be turned by hand, horse, or any other power.

Over the top of the upper box G, on ways M, on which it may be freely slid, is a shallow pan N, having a perforated bottom *f*, through which the water is furnished to the washing box G, regularly without force or current; and when the box G, is to be emptied or charged anew with the rough or crude material, said pan is run out on the ways M, so as to admit of this operation. The pan N also serves, when the machine is in motion, to prevent the water from splashing out of the box G. Friction rollers O, O, are suitably arranged underneath the washing box G, and flanges on said box (*g*,) direct it in its motion over said friction rollers, and cause it to run smoothly, and with great ease.

The washing and separating of the pure from the impure material, is to a great extent finished in the moving boxes, and the screen in the bottom of the lower one but the very minute particles pass together with the water, down into a receiver or reservoir P, underneath the machine, where everything is caught and allowed to settle or deposit. In one end of this reservoir I place a perforated plate *h*, and outside of it a water tight slide *i*, which slides downward. When the finer particles have had time to deposit, or settle down, below the surface of the water, the slide *i*, is gradually lowered, letting off the water from the top of the reservoir which may again be thrown into the washing box, and used over and over again, and this is continued until the whole matter is deposited when it is removed.

The operation of the machine is as follows, the material and water being furnished to the box G, and the machine set in motion, the clay or mud is dissolved and floats in the water, while the heavier particles pass through the bottom of the box, fall upon the screen D, the finer particles passing through said screen into the receiver below—the heavier particles roll off from said screen which is inclined for the purpose, and fall upon a platform where,

or upon the screen itself the larger particles of gold may be picked out by the fingers, and the impure matter wasted. The deposit in the bottom of the receiver or reservoir is carefully removed, and the gold separated from the sand, &c., by amalgamation with quick silver, or in any other well known manner. It might be proper to add, that one end of the washing box—viz., that at which it is emptied—should be removable and furnished with an apron to throw or guide it off from the machine.

A main feature in this machine is that the whole thing is accomplished by the falling or dripping of the water perpendicularly through the machine, and avoiding everything like current or undue agitation.

I do not claim washing or agitating the mass or earthy matter, containing the gold in a tub, box, or cistern, nor do I claim simply washing the earth without a current, but

What I do claim as new and original is—

The employment of the reciprocating, perforated trough armed with cutters or breakers in combination with the sieve and decanting trough arranged beneath the reciprocating trough, and in combination with said reciprocating trough I claim the percolating plate arranged above the same.

JOHN HEADDINGTON WARD.

Witnesses:

A. B. STOUGHTON,

SAML. GRUBB.