T. W. IRVIN.

GOLD-SEPARATOR.

No. 184,082. Patented Nov. 7, 1876.

Fig. 1.

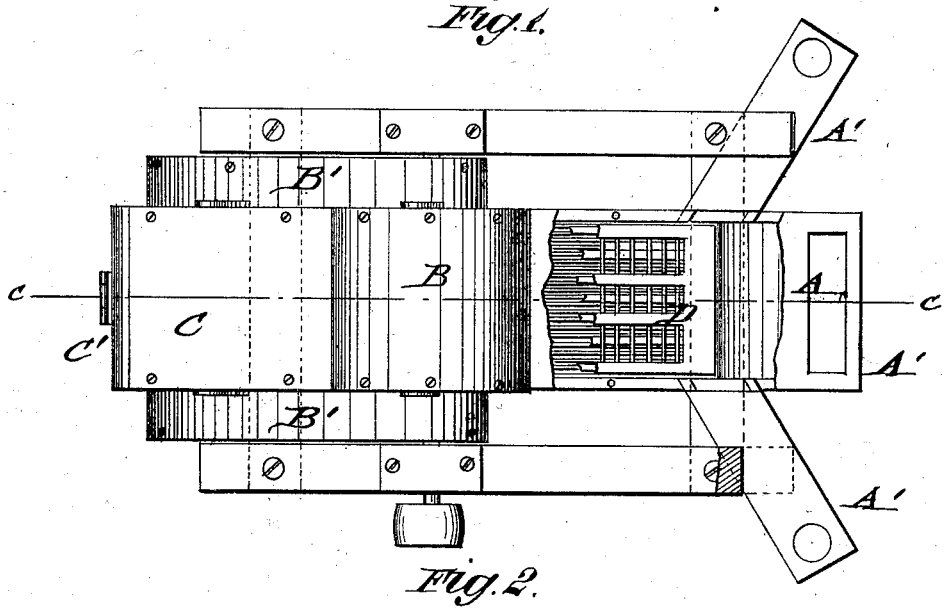


Fig. 2.

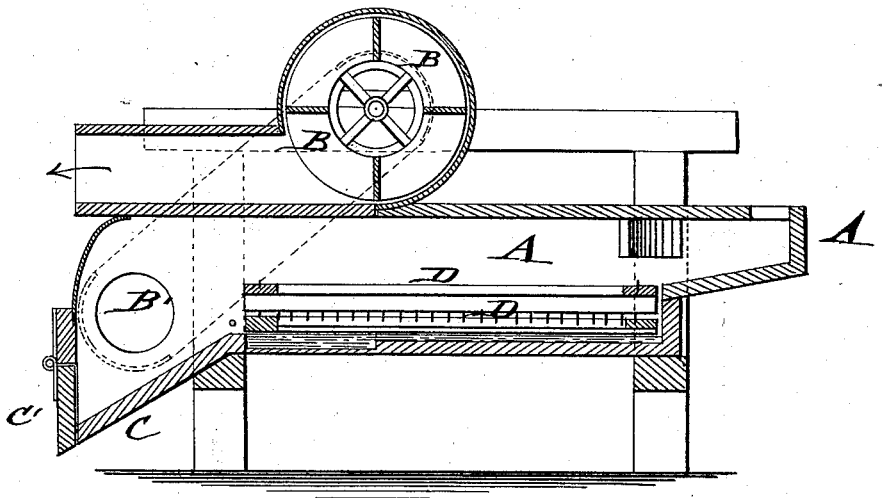
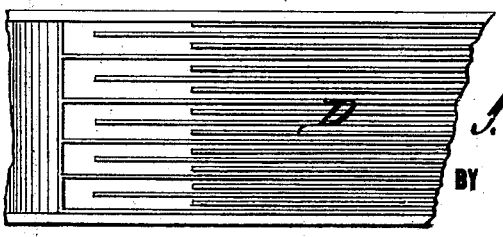


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

THOMAS W. IRVIN, OF EUREKA, CALIFORNIA.

IMPROVEMENT IN GOLD-SEPARATORS.

Specification forming part of Letters Patent No. **184,082**, dated November 7, 1876; application filed May 16, 1876.

To all whom it may concern:

Be it known that I, THOMAS W. IRVIN, of Eureka, in the county of Humboldt and State of California, have invented a new and Improved Gold-Separator, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a top view, with part cut off, of my improved gold-separator; Fig. 2, a vertical longitudinal section of the same on line *c c*, Fig. 1; and Fig. 3, a detail top view of the lowermost grating.

Similar letters of reference indicate corresponding parts.

My invention relates to an improved apparatus or machine for separating gold from the gravel and earth as the same is tunneled or worked off for removal from the bank; and the invention consists of an exhaust-fan connected with a separating-tube that is provided with gratings of different width, and with quicksilver at the lowest grating to separate the finer and coarser particles of gold, while the heavy gravel is discharged through the hopper, and the lighter dust through the exit-tube of the fan.

In the drawing, A represents a separating-tube, that is placed near the bank to be tunneled or worked off, the rock, dirt, and gravel being fed to the same by supply-tubes A′ that are lengthened as the bank is dug away from the apparatus. The excavated material passes through the supply-pipes into the larger separating-tube, and is drawn through the same by the action of an exhaust-fan, B, whose side ducts B′ open into the discharge or hopper end C of the separating-tube, and serve to keep the valve-gate C′ of the same closed. The separating-tube A is provided with three or more gratings, D, of different kinds, the upper being the coarsest, and having longitudinal grate-bars over which the large gravel and bowlders pass, while the finer dirt falls through and strikes the second grating, whose lateral bars are closer together. The pulverized dirt is drawn off through the fan and exhaust-tube, while the coarser parts pass out with the gravel and rocks through the hopper and valve. The lowermost grating D is made finer, with longitudinal bars of metal running close together, as shown in Fig. 3, and being made with wider spaces near the hopper end by shortening some of the alternating grate-bars. The bottom part of the separating-tube A is filled up to a level with the lowermost grating D with quicksilver, which extracts the fine gold particles that pass downward by their heavier weight, while the coarser gold particles pass on to the wider grate-section at the end, and are there absorbed by the quicksilver, which is arranged near the end at greater depth.

The separating-tube A is constructed of wood and lined with sheet metal at the places exposed to wear. The gratings are made of iron bars, and the main and smaller tubes in sections, to enable the same to be taken to pieces and readily set up again for greater or smaller distances.

During the passage of the material over the grating, the heavier parts are kept separate from the smaller finer gravel and dirt, the dirt striking the second grating and passing to the lower grating for the extraction of gold.

The gold-bearing earth and gravel may, by this apparatus, be treated in effective manner as soon as worked off the bank, and the gold be separated by the mechanical action of the grating and the affinity of the quicksilver.

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

A gold-separator consisting of tube A, having supply-tubes A′ and valved hopper C, the suction-fan B, and the gratings D of varying fineness, space being left beneath the latter for quicksilver, as shown and described.

THOS. W. IRVIN.

Witnesses:
J. M. W. ROLLINS,
JAMES C. SMILEY.