B. TYSON.

Gold Washer and Separator.

No. 168,116. Patented Sept. 28, 1875.

Fig. 1.

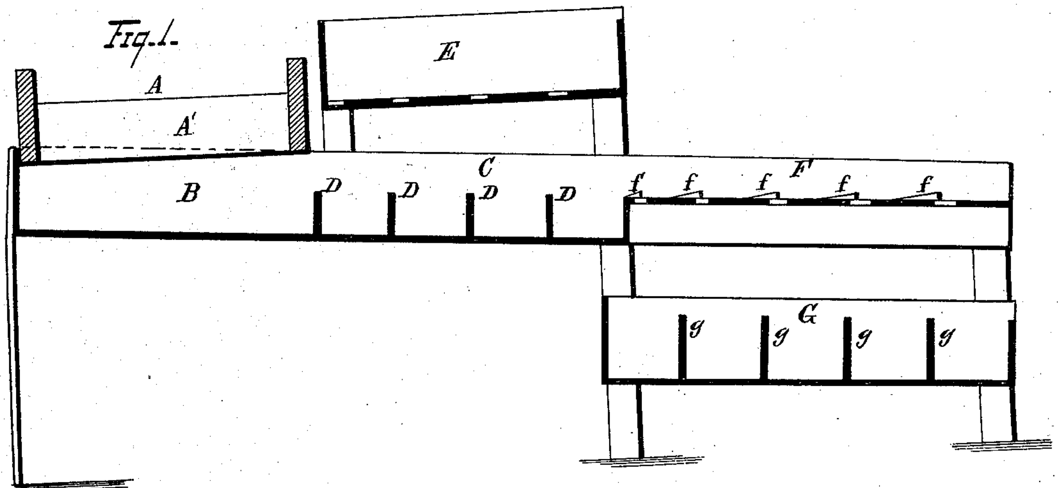


Fig. 2.

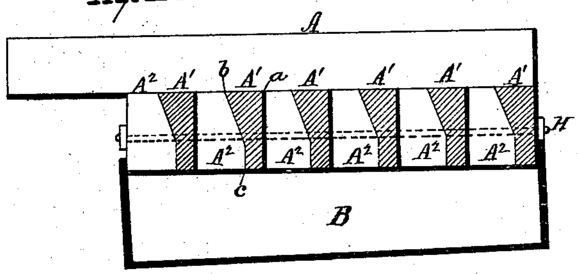
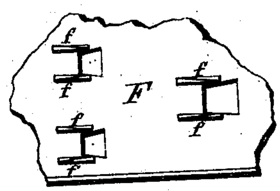


Fig. 3.



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UNITED STATES PATENT OFFICE.

BRYAN TYSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN GOLD WASHERS AND SEPARATORS.

Specification forming part of Letters Patent No. **168,116**, dated September 28, 1875; application filed June 7, 1875.

To all whom it may concern:

Be it known that I, BRYAN TYSON, of Washington, District of Columbia, have invented certain new and useful Improvements in Gold Washers and Separators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention pertains to gold washers and separators; and consists of a peculiarly-constructed grating, over which the water containing the sand, gravel, and gold is made to pass, the sand and gravel dropping between said bars and passing into an arrangement of boxes or receptacles, wherein, by the agitation of the flowing sand, &c., the gold is deposited; also, in a peculiarly-perforated platform, all constructed and arranged substantially as and for the purposes hereinafter more fully set forth and claimed.

In the drawings, Figure 1 is a vertical longitudinal section of my apparatus complete. Fig. 2 is a transverse section of the grating onto which the water, sand, &c., are first delivered. Fig. 3 is a plan view of a portion of the platform, showing the construction of the holes therein.

A is an arrangement of grating for throwing out the larger stones and pebbles, made preferably of cast-iron, as follows: The bars A^1 should be, say, six inches deep, one and one half inch thick on the top edge, inclining or sloping inward and downward on one side for about four inches, until they are brought to three-fourths of an inch. From this point downward the remaining two inches are of a uniform thickness—three-fourths of an inch. The bars may be about six feet long, or any other length to suit the stream of water. A^2 are cleats, which are cast to, and form a portion or part of, said bars. The top edge of the bars being twice as thick as the bottom will cause the open spaces to be wider at the bottom, and thus prevent the sand and gravel from clogging in their downward passage. The spaces between said bars should be about one and one-half an inch on the upper side.

The dimensions of the bars above given will make the spaces two and a quarter inches on the under side. The bars may, however, be of any desired thickness on either edge, and the spaces between them of any desired width to suit the requirements in the case, such as further experiments may indicate.

The cleats A^2 of said bars A^1 should be from, say, fifteen to eighteen inches apart. Rods H of iron should be passed through the whole set of bars and cleats, and fastened with screws and nuts, which will make all very strong and secure.

The grating A can be made of any desired width by the addition of similar cast bars, each one being separate and complete within itself. This arrangement of grating is adjustable. The spaces between the bars can be made wider, when desired, by adding small strips of metal or wood to the cleats A^2, and diminished by the removal of said strips. The bars, having been securely fastened together, should be arranged at an angle, such as will cause the water containing the gold, sand, pebbles, &c., to flow freely over them.

The object of the aforesaid arrangement is to cause the sand, gold, and small pebbles to drop through the open spaces between the bars into box B, situated immediately underneath, while the larger pebbles and stones are discharged over the lower side of the grating A.

A sufficiency of water should be permitted to flow over the bars to wash said stones or other substances away, and thus prevent an inconvenient accumulation. There should be a sufficiency of bars and spaces to allow all, or very nearly all, of the sand and small pebbles to fall through into the box B.

In this case we would readily conclude that but a very small percentage of gold would be discharged with the larger pebbles and stones, and we would, therefore, stand a chance to precipitate and save the whole amount of the gold washed down to the machine by the process hereinafter described.

The water, sand, gravel, &c., that are to be conveyed over said bars are such as are washed down in the ordinary process of hydraulic mining.

C represents a box, into which the water, sand, gold, &c., flow from box B, or, rather,

it may be considered a continuation of box B. B D are partitions placed in the box C, of any desired height, and, say, about six inches apart. E is another box or tank, situated immediately over the box C, having holes or openings in its bottom of about one-half an inch in diameter. This tank is to be kept filled with water, from which the sand and grit have nearly or quite all been extracted by a process described in a former patent of mine, issued November 3, 1874. Said holes should be so arranged that the jets of water therefrom will strike immediately in front of said partitions D D in box C. The force of these jets or discharges should be such as to cause a constant agitation of the sand in box C, but should not be sufficiently strong to wash the gold out.

The bottom of box E should not be placed more than eight or ten inches above the surface of the flowing sand, and we can then give the desired force to the said jets by increasing or decreasing the sides of the tank E, thus making it contain a higher or lower head of water. Some experimenting will, of course, be necessary to arrive at the proper force required for said jets. The front side of the tank E should be a little lower than the other sides, to permit the discharge of surplus water.

F is a perforated platform, made most properly of cast-iron, being a continuation in line of the top of partitions D in box C. The perforations cause a discharge of sand, gravel, &c., from the under strata containing the most of the gold. G is a box, constructed similar to box C, with partitions *g* arranged therein, the same, and the action of the jets of water, sand, &c., from the perforated platform F, being nearly the same as in box C.

As the flow of water will be greater near the discharge-end of box G it will, probably, be best to begin the holes at about one-half an inch in diameter, and increase them gradually to near an inch at the lower end.

By reason of a tendency of the sands and gravels to converge at the lower edge of circular holes, the holes soon become clogged, requiring almost the constant attention of an attendant to keep them open. I avoid this by making the holes nearly square, the upper side being a little less than the other three, and giving the holes a slight pyramidal shape. In addition to this, two small pieces of metal, *f*, are fastened to either side of said holes, and brought to a sharp edge at the upper end. They will thus slightly raise all pebbles that pass over them, and by this means cause them to be thrown beyond the point where they would otherwise be liable to clog the holes.

The platform F and box G should not be longer than about six feet; and if it be found that the gold has not been sufficiently extracted, the process can be continued indefinitely by means of other similarly-arranged boxes.

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

1. The bars A^1, constructed as shown in Fig. 2, wide at the top and narrow at the bottom, with a straight perpendicular rear edge, *a;* front, inwardly-inclined edge *b*, extending about two-thirds of the height of the bar, and straight, perpendicular lower front edge *c*, substantially as and for the purposes described.

2. The grating A, composed of separate removable and adjustable bars A^1, intermediate cleats A^2, and binding-rods H, all substantially as and for the purposes described.

3. In combination with grating A and box B, the partitioned box C D and perforated tank E, arranged in relation to each other, and the tank perforated in its bottom, so that the jets of water therefrom will strike just in front of each partition in the box C, as and for the purposes described.

4. The platform F, perforated or pierced with nearly square or slightly-pyramidal shaped holes, provided on each side with deflecting-plates *f*, as and for the purposes described.

5. The gold precipitator and concentrator, consisting of grating A, box B, partitioned box C D, tank E, perforated platform F, and partitioned box G *g*, all constructed, arranged, and adapted to operate as and for the purposes described.

In testimony that I claim the foregoing I have hereunto set my hand this 1st day of June, 1875.

BRYAN TYSON.

Witnesses:
L. L. LEGGETT,
WM. L. BRAMHALL.