B. TYSON.

Washer and Amalgamator for Hydraulic Mining.

No. 208,773. Patented Oct. 8, 1878.

Fig. 1.

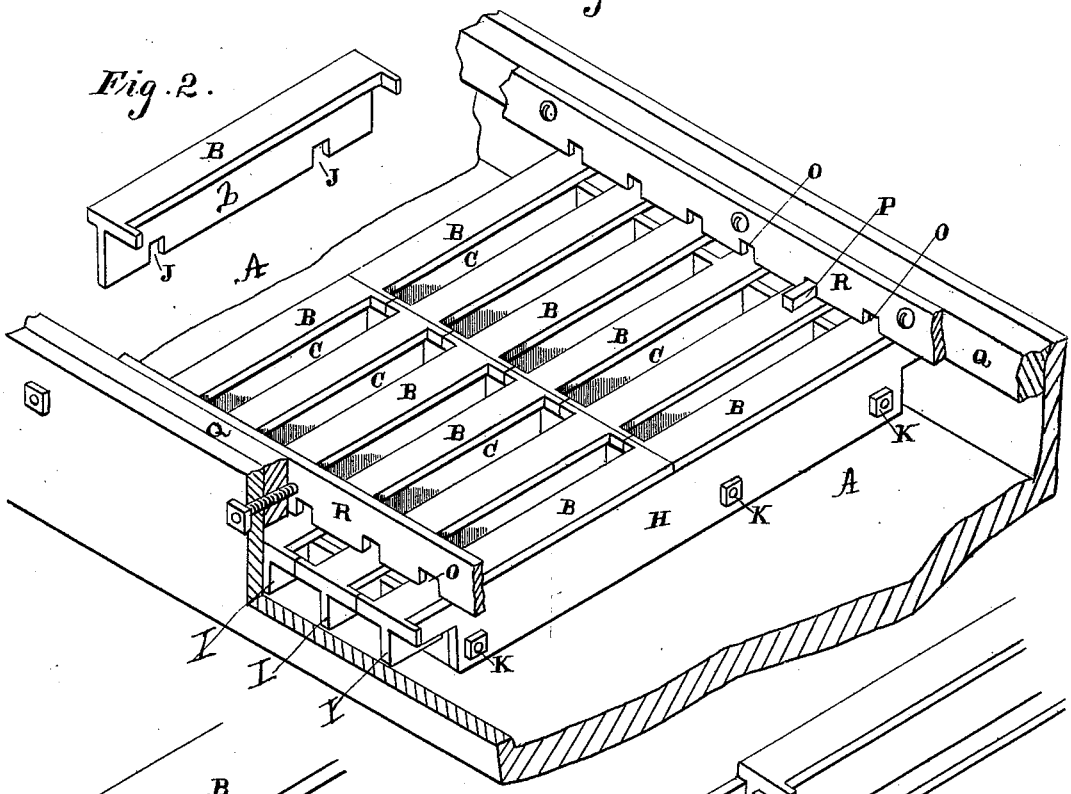
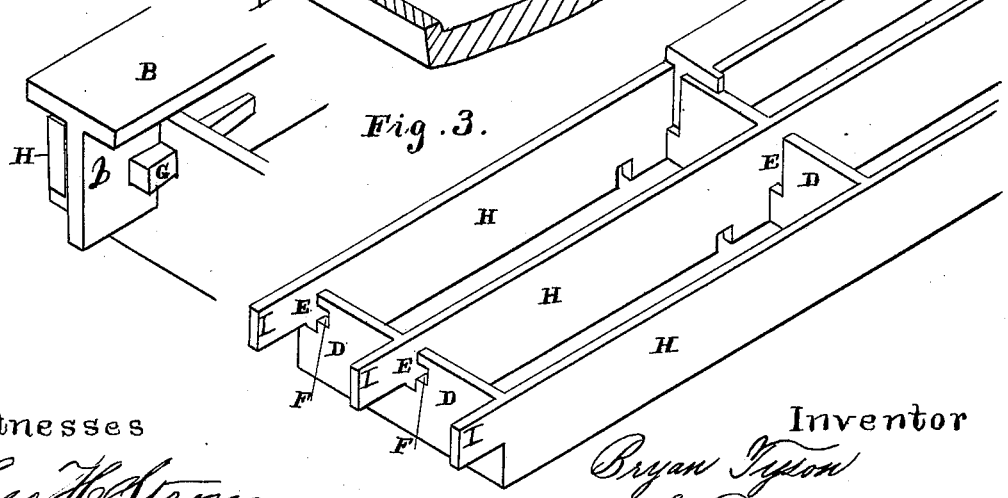


Fig. 2.

Fig. 3.



Witnesses

Geo. H. Strong.

Frank A. Brooks

Inventor

Bryan Tyson

by Dewey & Co.

Attys

UNITED STATES PATENT OFFICE.

BRYAN TYSON, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN WASHER AND AMALGAMATOR FOR HYDRAULIC MINING.

Specification forming part of Letters Patent No. **208,773**, dated October 8, 1878; application filed July 8, 1878.

To all whom it may concern:

Be it known that I, BRYAN TYSON, of Washington city, District of Columbia, have invented an Improved Washer and Amalgamator for Hydraulic Mines; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention relates to an improvement in a combined washer and amalgamator for hydraulic mines; and consists in improvements upon my previous patent, dated April 10, 1877, numbered 189,528. These improvements refer more particularly to the details of construction of the frame and grate-bars used in connection with my washer and amalgamator, to increase durability by making the bars reversible, as will be hereinafter fully described.

Referring to the accompanying drawings, Figure 1 is a perspective view of my device. Fig. 2 is a view of a grate-bar. Fig. 3 shows enlarged details of construction.

A represents the receiving-grate, over which the earth or detritus containing the gold passes as it is carried down by the water, and which is composed of a series of grate-bars, B, with spaces C between them; and said grate may extend from four to six feet up or down the flume, according to the quantity of gravel and water desired to be discharged into the flume situated below. The grate-bars B, and the frame in which they are placed, are of such construction that said bars can be readily removed from the frame on which they are placed, and others put in and secured in their position.

The frame on which this grating is placed is composed of upright plates H, made preferably of soft cast-iron, with webbing D intervening at some three different points, said webbing on the outer ends being situated some three inches from the sides of the flume, and provided with receptacles E, into which the flanges of the grate-bars B are dropped. A mortise, F, cut wholly in the webbing, and leading out of the receptacle E, is intended for the insertion of a key, G, which secures the grate-bar in position against the plates H. Experience has shown that it is best to have this mortise wholly in the webbing instead of partly in the webbing and partly in the flange of the grate-bar, as the flange in the grate-bar can then be made lighter, and thus effect a saving of metal. These plates H extend across the flume, and, with the webbing, form the frame on which the top bars rest. The plates H are cut away at the ends, as shown, so that the ends I extend to the sides of the flume past the webbing, as shown. The central webbing D has also a receptacle, E, formed in it, which serves to support the grate-bars at the center of the frame, and connects the plates H at that point.

The grate-bars B are formed in two parts precisely alike, so that when those portions of the grate-bars in the center of the flume, where the greatest wear occurs, become worn, they may be turned end for end in the frames, and a fresh surface presented at the center. To be able to accomplish this, I cut slots or mortises J in the lower flange, *b*, of the grate-bar, one near each end, so that whichever way one of the pieces of grate-bar is turned one of these mortises J will fit over the webbing D at the point where the flange of the grate-bar rests in the receptacle E. Then the other end of the grate-bar will rest on the central webbing D, extending half-way through the receptacle E, said webbing being thick enough to hold the meeting ends of both grate-bars, as shown. Bolts K pass through the plates H at the center and near their ends, thus binding the whole frame together.

To the sides of the flume, where the side blocks are usually placed, I attach a piece of timber extending up and down the flume the entire width of the grating. On the inner sides of this timber Q, I bolt a metal plate, R, preferably of cast-iron, which plate has its lower edge resting on top of the top bars, as shown, the bolts passing through the timber, plate, and the side of the flume.

On the lower edges of the metal plates R are mortises O, and corresponding mortises extend through the side timbers Q, situated between said plate and sides of the flume. Said mortises are for the reception of keys P, composed of wood or other material, for the purpose of keeping in position the bars B, the

keys being specially serviceable after the ends of the bars have been reversed in consequence of the inner ends having become worn.

When it is desired to remove a grate-bar and turn its outer end to the center, for the purpose herein described, the timber Q and plate R are removed by removing the bolts, when the grate-bars may be lifted up and ends thereof reversed. After being placed in position said bars may be again secured by driving the keys into the receptacles after the timber and plate shall have been bolted in position.

This method of securing the grate-bars so that they may be removed has many advantages. They may be easily and quickly removed and changed, and, in consequence of the arrangement provided for reversing the ends, will last about twice as long as a solid bar of similar dimensions extending entirely across the flume.

The side plates R serve to protect the timber on the side of the flume from wear by passing rocks and stones. The larger stones and rocks will be washed over the grate-bars, while the heavier portions containing the gold will settle into the spaces formed by the frame under the grate-bars, to be afterward saved by my washer, which is fully described in my previous patent.

As the ends of the grate-bars project out past the side plates to the sides of the flume, there is no wear on these ends, and there is very little wear on the bars except in the center, because the heavier rocks pass down the middle of the flume. The bars, when turned as described, present fresh unworn surfaces to the rolling rocks.

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

1. The sluice and receiving-grate A, provided with longitudinal ribs or webs D, in combination with a series of reversible grate-bars, for the purpose set forth.

2. In a receiving-grate for sluices, the grate-bars B, having their downwardly-projecting flange *b* provided with notches J at each end, in combination with the webbing D, provided with notches E E, substantially as set forth.

3. In a receiving-grate for sluices, the grate-bars B, having notched ribs *b*, and webs D, having notches E, in combination with the keys G, substantially as herein set forth.

4. In a receiving-grate for sluices, the reversible grate-bars B, with their notched ribs fitting into webs D, in combination with the clamping-bar R and the holding-keys P, substantially as and for the purpose set forth.

BRYAN TYSON.

Witnesses:
GEO. H. STRONG,
FRANK A. BROOKS.