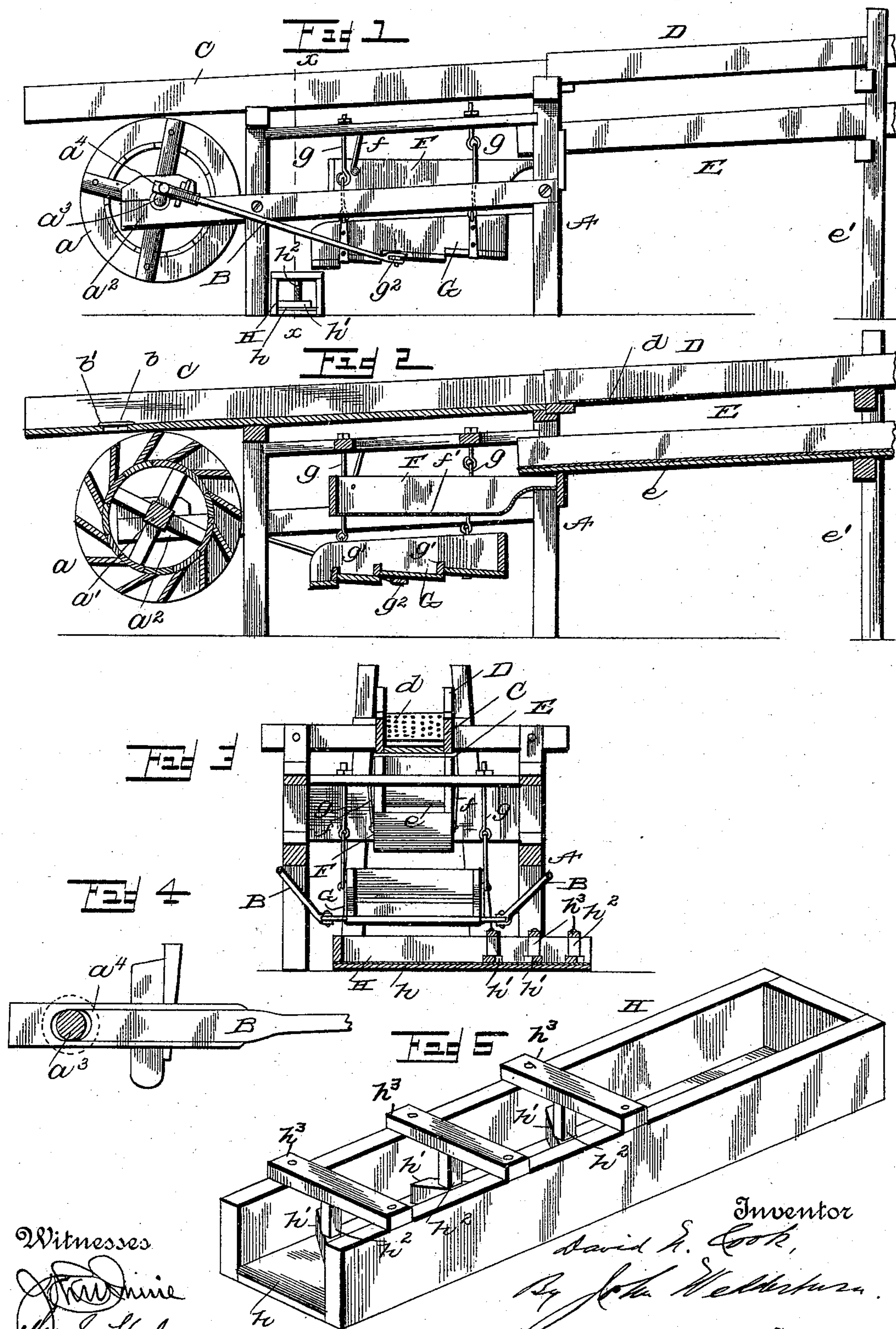


(No Model.)

D. N. COOK.  
AMALGAMATING MACHINE.

No. 496,247.

Patented Apr. 25, 1893.



Witnesses

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# UNITED STATES PATENT OFFICE.

DAVID N. COOK, OF RIVERSIDE, COLORADO.

## AMALGAMATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 496,247, dated April 25, 1893.

Application filed July 14, 1892. Serial No. 440,020. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID N. COOK, of Riverside, in the county of Chaffee and State of Colorado, have invented certain new and useful Improvements in Amalgamating - Machines; 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 appertains to make and use the same.

This invention relates to certain new and highly useful improvements in amalgamating machines, and has for its object the production of a machine of this class which shall comprise advantages in point of simplicity, durability and inexpensiveness, whereby all gravel and other matter, save black-sand and gold, are carried off by the water which also runs the wheel which operates the amalgamator.

The invention comprises an amalgamating machine having an amalgamator which is given a reciprocal jerky motion by the rotation of a water-wheel which is made to revolve by water falling from a sluice extending over the machine, said sluice at a point beyond the amalgamator having a perforated bottom through which black sand and gold will fall into a trough having an amalgamated plate, and a perforated box located over the amalgamator for distributing the water equally over said amalgamator.

The invention also comprises the detail construction, combination and arrangement of parts, substantially as hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings:—Figure 1 is a view in side elevation of my improved amalgamating machine. Fig. 2 is a vertical longitudinal sectional view thereof. Fig. 3 is a transverse sectional view on the line  $x-x$ , Fig. 1. Fig. 4 is a detail showing the connection between the crank-shaft and the pitmen. Fig. 5 is a view of a detail feature.

Referring to the drawings, A designates the main-frame of any preferred construction, and  $a$  an overshot water-wheel, whose shaft or axle  $a'$  is supported by side extensions  $a^2$  of said frame. The ends of this shaft are provided with oppositely disposed crank-arms  $a^3$ , and

to these crank-arms are secured the box-ends  $a^4$  of pitmen B, the openings in said box-ends being made oblong.

C is a sluice extended longitudinally over and beyond frame A, said sluice having an opening  $b$  therein through which the water is designed to pass onto the wheel to effect the revolution thereof. Cross-rods  $b'$  extended over this opening serve to prevent stones from falling onto the wheel. This sluice is provided at its receiving end with an extension D having a perforated bottom  $d$ , and beneath this extension is a correspondingly shaped trough E provided with an amalgamated plate  $e$  extending over its bottom. At their outer ends trough E and the extension D of sluice C are supported by a frame  $e'$  so as to be always on an incline.

F is a distributing box located within frame A, and suspended by short rods  $f$ . The bottom  $f'$  of this box is perforated and its receiving end is directly beneath the discharge end of trough E. Beneath this box F is the amalgamator G, which is loosely supported by rods  $g$  depending from a cross-bar of frame A. The bottom of this amalgamator is provided with a series of step-like compartments, separated by cross-bars  $g'$  and within these compartments quicksilver is placed. To the bifurcated ends of a cross-bar  $g^2$  attached to the bottom of amalgamator G the free ends of pitmen B are connected. These pitmen impart to the amalgamator a reciprocal, lateral jerky movement, the same being caused by the crank-arms of the power wheel shaft striking against the ends of the slots in the pitmen.

The operation of my improved amalgamating machine is as follows: The machine being placed on, or adjacent to a hillside, the water will flow into the receiving end extension of the sluice and all black sand and gold will pass through the perforated bottom of said extension onto the trough E, the water continuing on down through the sluice and out through the opening therein onto the water-wheel, effecting the revolution thereof, and through the agency of the pitmen the back and forth and lateral movement of the amalgamator. From the trough E the black sand and gold and water pass onto the perforated bottom of box F and through the latter onto



the amalgamator, said box serving to equally distribute the water over the amalgamator and its contents in order to keep the sand loose and prevent clogging thereof.

5 In Fig. 5 I have illustrated a trough H used to collect gold from quartz mills. This trough is attached to frame A adjacent to the discharge of the amalgamator G, and it is provided with an amalgamated copper bottom  $h$   
10 and a series of short bars  $h'$  extended nearly entirely across said bottom obliquely and in opposite directions, so as to form a zig-zag discharge. These short bars are held in place by vertical bars  $h^2$  depending from the upper  
15 cross-bars  $h^3$  secured to the sides of the trough.

The advantages of my invention are apparent to those skilled in the art to which it appertains and it will be especially observed that by means thereof there is no waste of  
20 gold and that I am also enabled to save black sand.

I claim as my invention—

1. The combination with the main frame, of the sluice extending thereover having an  
25 opening in its bottom, the water-wheel located beneath said opening and having its shaft provided with crank-ends, the amalgamator, the box suspended above said amalgamator and having a perforated bottom and the pit-  
30 men connected thereto and to the crank-ends of said shaft, substantially as set forth.

2. In an amalgamating machine, the combination with the main frame, of the amalga-

mator loosely suspended therein, and having a series of step-like compartments the water- 35 wheel having its shaft provided with crank-ends, and the pitmen having box-ends with oblong slots therein, connected with said crank-ends said pitmen being also connected to said amalgamator, whereby the latter is 40 given a reciprocal jerky movement, by the revolution of said water-wheel substantially as set forth.

3. The combination with the main frame having the side extensions, of the water-wheel, 45 the shaft therefor supported by said side extensions and having crank-ends, the pitmen having slotted ends and connected to said crank-ends, the amalgamator having a series of step-like compartments, the rods loosely 50 supporting said amalgamator, the box suspended from said frame above said amalgamator and having a perforated bottom, the trough having a plate-covered bottom and opening into said box, the sluice extending 55 over the said frame and having an opening in its bottom over said water-wheel, and the receiving extension of said sluice having a perforated bottom, substantially as set forth.

In testimony whereof I have signed this 60 specification in the presence of two subscribing witnesses.

DAVID N. COOK.

Witnesses:

J. M. BONNEY,  
HUGH CRYMBLE.