No. 657,184. Patented Sept. 4, 1900.

E. A. STEWART.

COAL WASHER.

(Application filed Feb. 19, 1900.)

(No Model.)

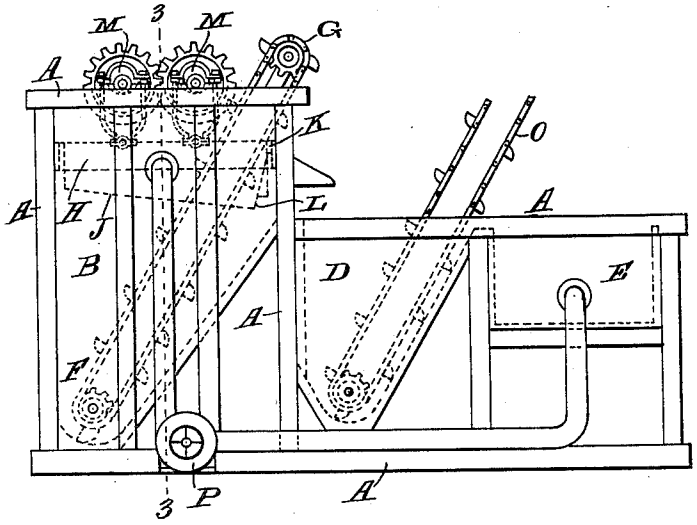


Fig. 1.

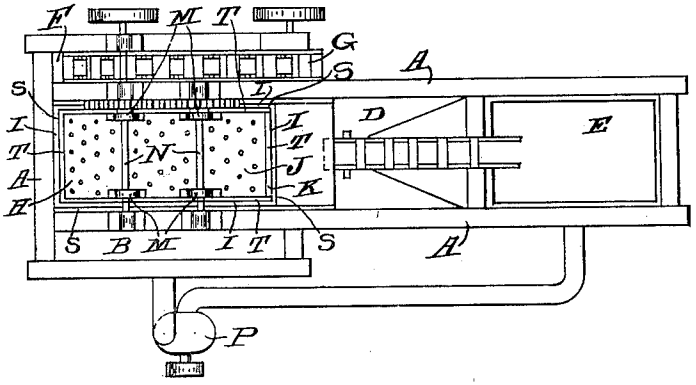


Fig. 2.

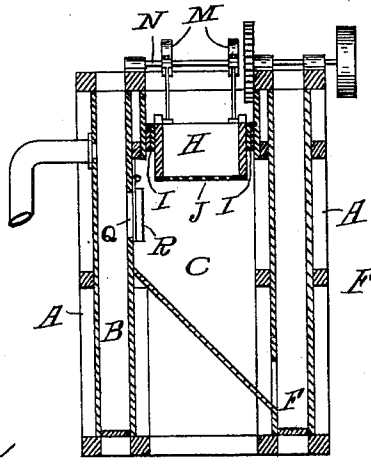


Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

ELWOOD AUGUSTUS STEWART, OF CINCINNATI, OHIO.

COAL-WASHER.

SPECIFICATION forming part of Letters Patent No. 657,184, dated September 4, 1900.

Application filed February 19, 1900. Serial No. 5,844. (No model.)

To all whom it may concern:

Be it known that I, ELWOOD AUGUSTUS STEWART, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented an Improvement in Coal-Washers; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a side elevation of the coal-washer. Fig. 2 is a plan view of the coal-washer. Fig. 3 is a section on line 3 3 of Fig. 1.

My machine consists of a framework A, which supports the mechanism of the jig and in which are inclosed tanks B, C, D, and E. The bottom of the chamber C below the jig-box H inclines to cause said tank to terminate in a pocket F, in which is the bottom or boot of a bucket elevator G. The jig H is a box-like structure having a perforated bottom and which reciprocates vertically in suitable guideways I. The perforated bottom J is inclined from rear to front and is made of perforated metal. At the front of the jig H is an opening K for the discharge of the washed coal and water, formed by omitting the upper part of the front end wall of the jig H. The front end wall below the opening K is inclined rearward and downward to the bottom of the jig and terminates in an opening L for the discharge of the impurities separated from the coal.

The coal is fed into the jig at its rear. The jig H is given a vertically-reciprocating motion by means of eccentrics M, secured on shafts N, mounted in bearings on frame A. A lateral space is left above the pocket F, in which is mounted a perforated bucket elevator G to remove the slate. There is a partition which separates the space occupied by perforated elevator G from tank C, there being merely an opening large enough to allow the impurities to pass from the inclined bottom of tank C to the boot F of perforated elevator G. The jig discharges the clean coal into tank D, from which it is elevated by a perforated bucket elevator O. The surplus water in tank D overflows into tank E, from which it is pumped by the centrifugal pump P into tank B, thus keeping up a constant circulation of water.

Between the tanks B and C is an opening Q, which is provided with a valve R, which opens when the jig H rises and closes when the jig H is forced down.

Attached to the inside of the tank C are metallic plates S, and attached to the outside of jig H are metallic plates T. The size of the inside of the metallic plates S is the same as the outside plates T on the jig, forming a sliding joint.

The operation of my washer is as follows: The unwashed screenings are discharged into the jig, and a vertical movement of reciprocation is given the jig by the mechanism provided for that purpose. When the jig H is raised, it sucks the water through the opening Q from tank B to tank C. When the jig is forced down, it closes the valve R, forcing the water up through the material in the jig H. This causes the material in the jig H to be suspended a short time in the water during the downward movement of the jig, so as to give the heavier portions an opportunity by the rapid subsidence to arrange themselves as the lower strata, while the lighter portions form the upper strata. When the material reaches the height of the lower edge of the discharge-opening, the clean coal, which is uppermost, will pass through and fall upon the chute into the tank D, while at the same time there is a constant discharge of impurities through the opening at the bottom of the jig, said impurities falling along the inclined bottom of tank C into the pocket F, whence they are removed by the bucket elevator.

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

The combination in a coal-washer of a vertically-reciprocating jig H, provided with a perforated bottom J, metallic sliding joints S T on its sides, water-tank C, with inclined bottom, perforated bucket elevator G, tank D, elevator O, tank E, centrifugal pump P, tank B, opening Q between tanks B and C, valve R to close opening Q, substantially as described.

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Witnesses:
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