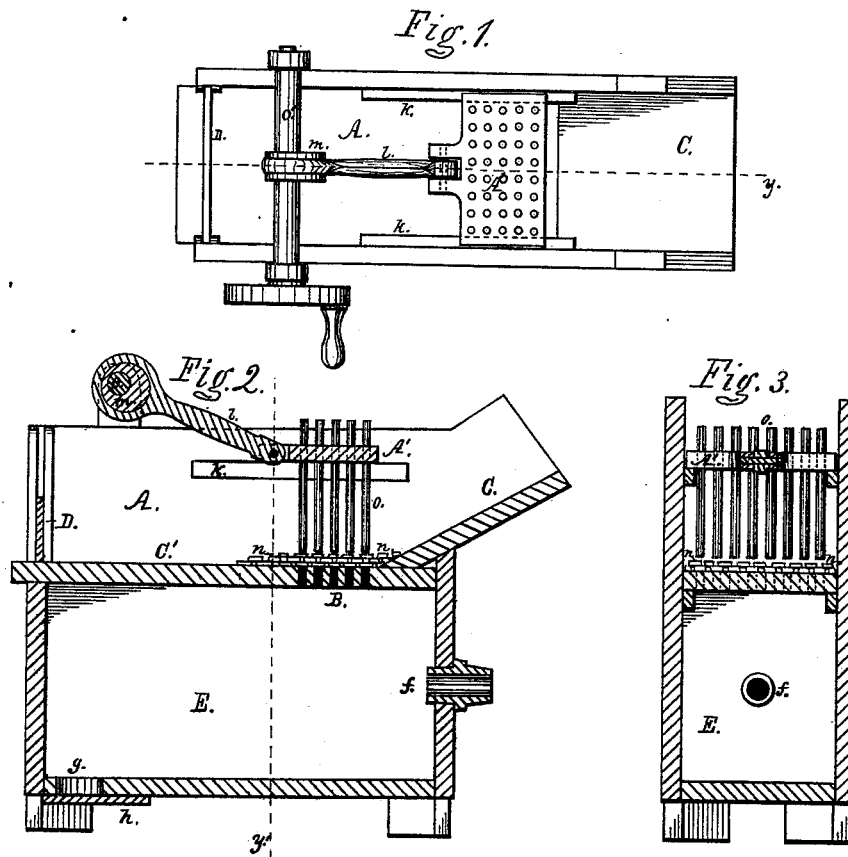


J. M. BAILEY.
Ore-Washer.

No. 213,540

Patented Mar. 25, 1879.



Witnesses:
James Johnston,
Robt. Whittlessey.

Inventor
James M. Bailey

UNITED STATES PATENT OFFICE.

JAMES M. BAILEY, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN ORE-WASHERS.

Specification forming part of Letters Patent No. **213,540**, dated March 25, 1879; application filed June 14, 1878.

To all whom it may concern:

Be it known that I, JAMES M. BAILEY, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Coal and Ore Washers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to an improvement in coal and ore washers, and is an improvement of the coal and ore washer for which Letters Patent were granted to me June 5, 1877, No. 191,511; and my present invention consists in combining with my former device an agitator arranged and operating with relation to said device, as hereinafter described.

To enable others skilled in the art with which my invention is most nearly connected to make and use it, I will proceed to describe its construction and operation.

In the accompanying drawings, which form part of my specification, Figure 1 is a top view or plan of my improved apparatus for washing coal and other mineral and metallic matter. Fig. 2 is a vertical and longitudinal section of said washing apparatus at line *y* of Fig. 1. Fig. 3 is a vertical and transverse section of the same at line *y'* of Fig. 2.

In the accompanying drawings, A represents the washing-chamber, the bottom *C* of which is provided with a series of openings, B, which communicate with the chamber E. The washing-chamber A is furnished with a chute, C, and an adjustable gate, D, and a sliding head, A', provided with a series of prongs, *o*. Said head moves on ways *k*, and is operated by a cam, *m*, on the crank-shaft *o'* through the medium of a pitman, *l*. Over the openings B are placed pieces of slate or other similar matter, as is indicated at *n*. The chamber is connected at *f* with a suitable water-supply, and is furnished with an outlet-opening, *g*, which is closed by a slide-gate, *h*. The pieces of slate (indicated at *n*) should be small, yet sufficiently large to prevent them from passing through openings at B. The prongs *o* of the sliding head are constructed of rods of iron about one-fourth of an inch in diameter.

The machine or apparatus herein described is of the same construction as that described in the hereinbefore-cited Letters Patent No.

191,511, excepting that it is provided with the sliding head A' and mechanism employed for operating said head, and the openings at B covered by a thin layer of pieces of slate, as at *n*.

The coal is ground up into very small particles and enters the washing-chamber by chute C, down which is constantly flowing a current of water. The chamber E is supplied with water from a proper reservoir of sufficient head to cause the water to flow up through openings B with some force.

Having all things constructed and arranged as hereinbefore described, motion by proper power is given to the sliding head A'. The ground coal is charged into the chute C, and, coming in contact with the water, is carried down the chute, comes in contact with the currents of water flowing up through openings B, which currents are broken up by the prongs *o* of the sliding heads, agitating the pieces of slate, as at *n*, which agitation, combined with up-flowing water through the openings B and the counter current flowing at chute C, forms a series of whirling eddies, which perfectly separate the sulphur from the particles of coal, which pass off through chamber A and over the gate D to a suitable receiving-vessel. The sulphur, sinking down through the openings B, is deposited on the bottom of the chamber E, from which it is removed at suitable intervals through the medium of the opening *g*.

The washer herein described is for utilizing fine slack and coal highly combined with sulphur; freeing the slack and ground coal from the sulphur; for making coke free from sulphur.

Having thus described the nature, construction, and operation of my improvement, what I claim as of my invention is—

A coal or ore washing apparatus, consisting of an upper inclined trough, A, with removable end-gate D, and provided with openings B and water-chamber E, provided with suitable inlet *f* and outlet *g*, combined with an agitator, A', whereby the entering material is buoyed up in a water-bath while subjected to the separating action of water-currents and agitator, substantially as hereinbefore described, and for the purpose set forth.

JAMES M. BAILEY.

Witnesses:

JAMES J. JOHNSTON,
R. H. WHITTLESEY.