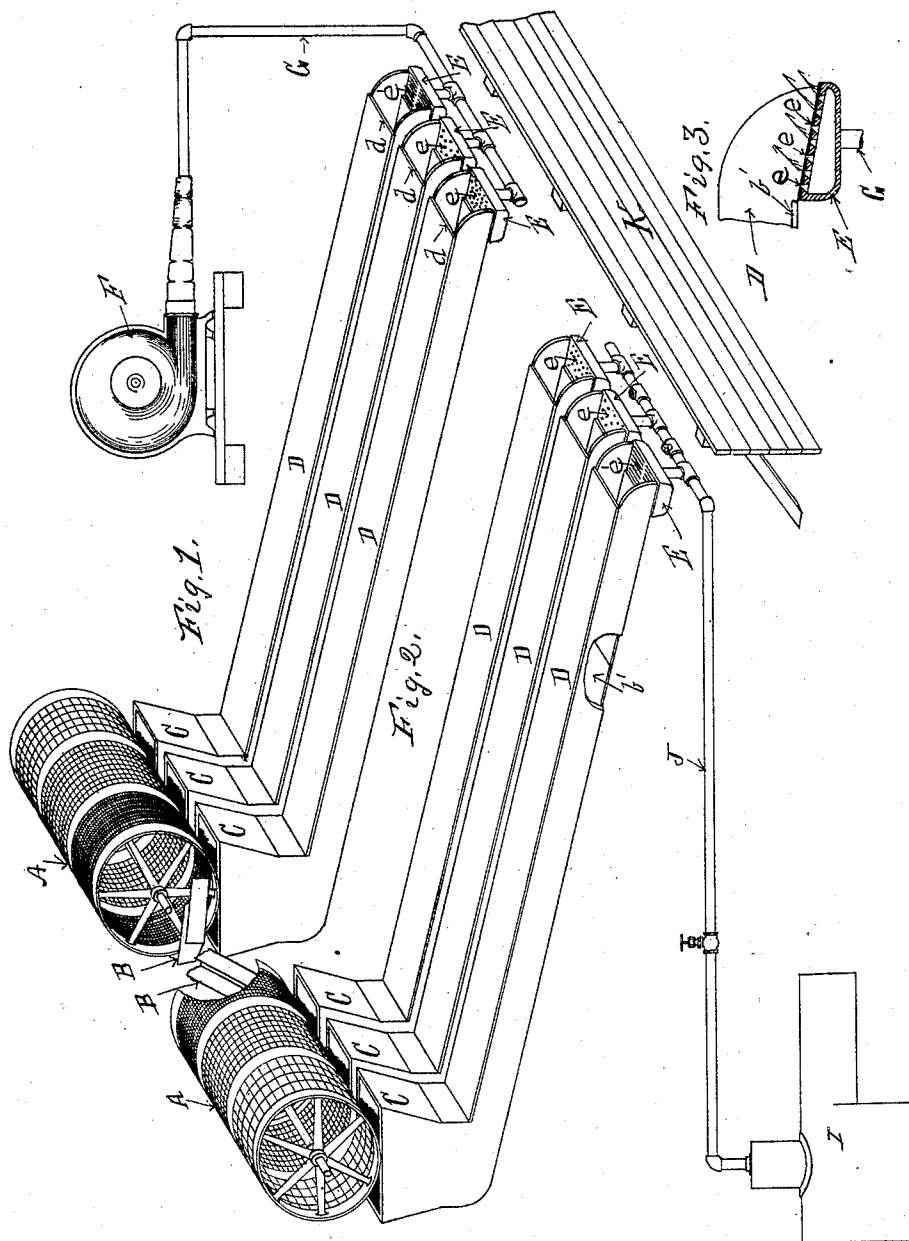


(No Model.)

A. K. HILLS.
COAL CLEANER.

No. 474,045.

Patented May 3, 1892.



WITNESSES

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UNITED STATES PATENT OFFICE.

ADDISON K. HILLS, OF ERIE, PENNSYLVANIA.

COAL-CLEANER.

SPECIFICATION forming part of Letters Patent No. 474,045, dated May 3, 1892.

Application filed September 30, 1891. Serial No. 407,357. (No model.)

To all whom it may concern:

Be it known that I, ADDISON K. HILLS, a citizen of the United States, residing at the city of Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Mechanism for Separating Slate and Dirt from Coal; 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming a part of this specification.

My invention consists in the mechanism for separating slate and dirt from coal, hereinafter set forth and explained, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my improved mechanism for separating slate and dirt from coal. Fig. 2 is a like view of the same, showing steam connections therewith. Fig. 3 is a sectional detail of a portion of my device.

In the constructions of my invention shown in the drawings, in Fig. 1 A is a revolving screen of usual and ordinary construction, to which the material to be screened is supplied through a spout B, the material being screened falling into hoppers C C C, one for each size of the material screened, from which the material screened passes down inclined chutes D D D, the bottoms of these chutes being lined, preferably, with steel plates *b'* or with other hard substance, except at the ends *d d d* of these chutes, where the bottoms of the chutes are formed of chambers E E E, having holes *e* or slots *e'* in the upper surfaces thereof, these holes or slots being inclined forward, so that the force of jets of air issuing therefrom is exerted upward and forward in the direction of the line of travel of the material passing down and out of the chutes D D D. These chambers E E E, I preferably supply with air under pressure—as, for example, from a convenient blower F by means of a pipe G, connected therewith.

In Fig. 2 I show the same construction of mechanism as I have hereinbefore described, except that I connect a steam-boiler I with

the jet-chambers E, so that jets of steam can be used in lieu of air-jets, as hereinbefore described, as I can use either steam or air jets with equal facility.

In operation as the material to be separated passes out of the ends of the chutes and over the chambers at the ends thereof the force of the jets of air or steam used operates upon the lighter portions of the material to raise it and project it forward, so that it will pass over and outside of barriers K, while the heavier portions of the material, being less affected by the air or steam jets, will fall inside of the barrier K, thus separating the lighter from the heavier material.

Having thus described my invention, so as to enable others to construct and operate the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a machine for separating slate and dirt from coal, of an inclined chute having its bottom lined with steel plates or other hard substance until near the discharge end thereof with a chamber having a sharply-inclined surface forming the bottom of said chute from the end of said lining to the discharge end of the chute, having perforations or slots therein through which air or steam jets may be forced in an upward and forward direction, substantially as and for the purpose set forth.

2. The combination, in a machine for separating slate and dirt from coal, of rotating screens, as A, hoppers, as C, and inclined chutes, as D, with chambers, as E, the surfaces of which are at a greater inclination than the bottoms of the chutes, forming the bottoms of the discharge ends of said chutes, having holes or slots in the upper surfaces thereof through which jets of steam can be projected upward and forward toward the line of travel of the material passing down the chutes, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ADDISON K. HILLS.

Witnesses:

WM. P. HAYES,
C. J. STURGEON.