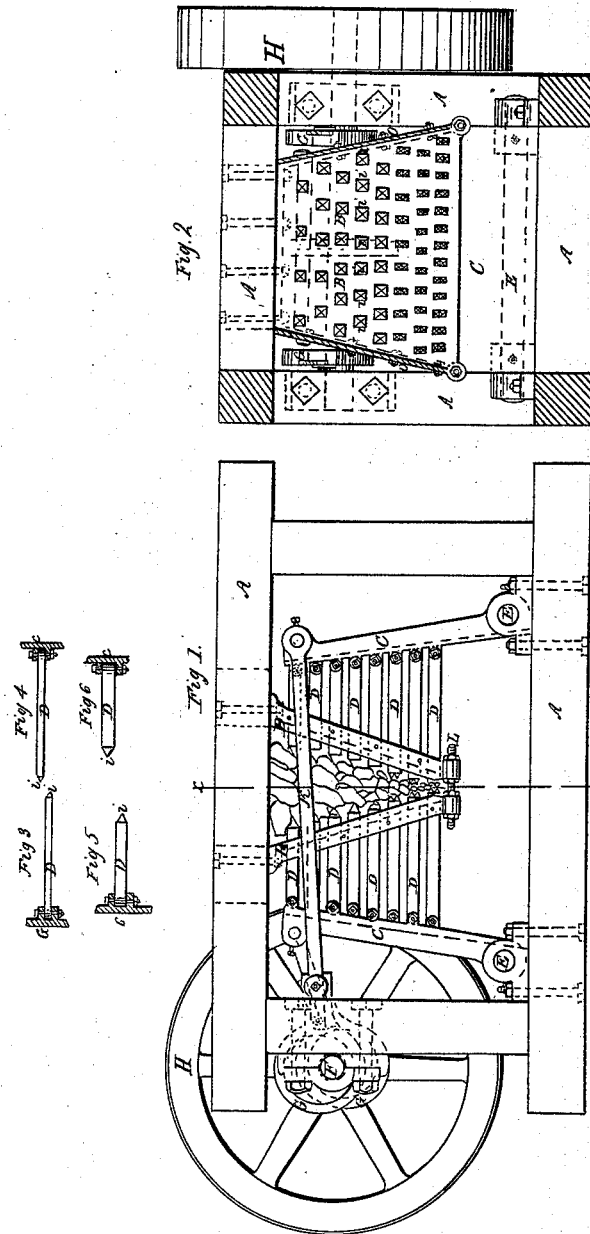


J. FOX.
Coal Breaker.

No. 47,409.

Patented Apr. 25, 1865.



Witnesses:

C. W. Taylor
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UNITED STATES PATENT OFFICE.

JACOB FOX, OF PHILADELPHIA, PENNSYLVANIA.

COAL-BREAKER.

Specification forming part of Letters Patent No. 47,409, dated April 25, 1865.

To all whom it may concern:

Be it known that I, JACOB FOX, of the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and Improved Machine for Breaking Coal, named a Coal-Breaker; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification.

Figure 1 is a side view. Fig. 2 is a section taken vertically at *x x*, in Fig. 1. Figs. 3, 4, 5, and 6 are views of the picks with section of plates *c c*.

A is a wooden frame; B B, a stationary hopper, in which the coal is broken by picks D D; *c c*, vibrating plates, to which the picks are attached; D D, picks attached to plates *c c* and passing through holes in hopper B B; E E, shafts on which plates *c c* vibrate; F, driving-shaft on which are the eccentrics or cranks G G, transmitting the motion to plates *c c* through connecting-rods K K; G G, eccentrics; H, pulley on shaft F; I I I I, points of picks, as seen in Fig. 2, passing through the side of hopper B; K K, connecting-rods connecting plates *c c* with eccentrics G G; L, screw at the bottom of hopper to regulate the size of outlet of coal in the hopper; O O, side of plates of hopper, as seen in Fig. 2, bolted on hopper B B.

The hopper B B, in which the coal is broken, is screwed to frame A, and is wide enough on top next the frame, to which it is securely bolted, to take in the coal, gradually tapering toward the bottom, where the plates B B of hopper are regulated by two screws, L L, making it wider or narrower, according to the size of coal wanted. Outside of hopper are vibrating plates *c c*, to which are secured one end of the picks D D. The other or pointed end of picks pass through holes in the hopper-plates. (pick holes seen in Fig. 2.) The bottoms of plates *c c* move in journals at E,

which are stationary, and only moved when the picks are to go more or less into the hopper, as may be found necessary in the process of operation.

The three lower rows of picks D D are oblong and double pointed. The upper rows are single pointed.

The plates *c c* are connected by rods K K to eccentrics G G, which are put on shaft F.

Operation: It will be seen that when motion is given by any of the usual modes the shaft F will revolve, giving motion to the eccentrics, and they, being connected to plates *c c*, by connecting-rods K, will move the plates *c c* backward and forward, and the picks D D, being secured to plates *c c*, give them motion, drawing them out and pushing them into the hopper in which the coal is broken.

The picks on both sides of the hopper have the same motion, both going in and coming out at the same time. Coal being put into the hopper, the upper rows of picks catch the coal first, separating or cracking it, and as the picks are drawn out the coal settles lower in the hopper, when the lower rows of picks, returning, break it still smaller, till the coal is small enough to pass out of the bottom of the hopper.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A stationary hopper, B B, adjustable at the bottom to regulate the size of coal, substantially as described, and for the purpose specified.

2. The vibrating plates *c c*, in combination with picks D D, substantially as described, and for the purpose specified.

3. A stationary hopper, B B, with picks D D, in combination with vibrating plates *c c*, or their equivalents, as and for the purpose specified.

JACOB FOX.

Witnesses:

WM. H. BUTLER,
JAMES M. EGBERT.