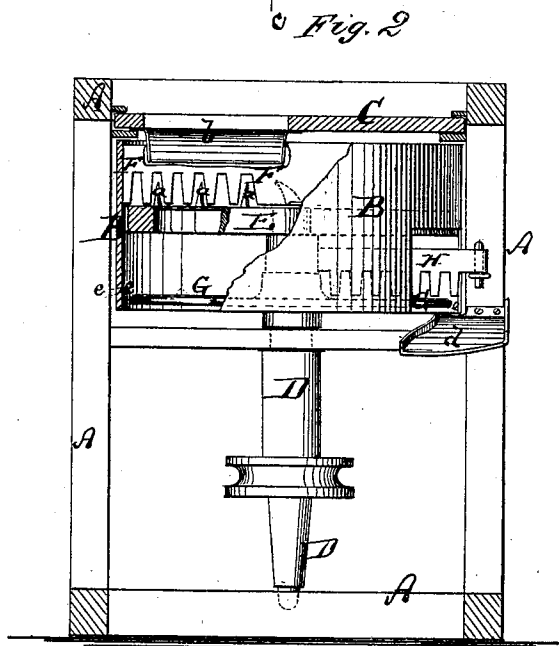
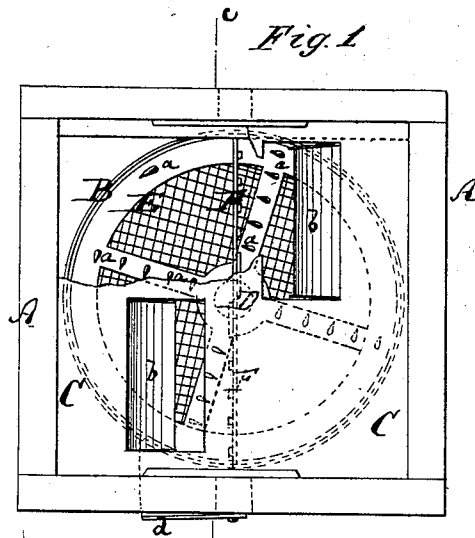


R. A. WILDER.
Coal-Breaking Machine.

No. 134,233.

Patented Dec. 24, 1872.



Witnesses:

A. W. Almy
C. S. Quirk

Inventor:

R. A. Wilder

PER

Munn & Co.
Attorneys.

UNITED STATES PATENT OFFICE.

RUFUS A. WILDER, OF CRESSONA, PENNSYLVANIA.

IMPROVEMENT IN COAL-BREAKING MACHINES.

Specification forming part of Letters Patent No. 134,233, dated December 24, 1872.

To all whom it may concern:

Be it known that I, RUFUS A. WILDER, of Cressona, in the county of Schuylkill and State of Pennsylvania, have invented a new and Improved Coal-Breaking Machine, of which the following is a specification:

Figure 1 is a top view, partly in section, of my improved coal-breaking machine. Fig. 2 is a vertical section of the same on the line *c c*, Fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to a new machine for breaking and assorting coal; and has for its object to obtain, as near as practicable, a clean fracture in breaking, and avoid thereby the prolific production of waste or coal-dust. My invention consists in the construction of a horizontal centrifugal machine whose rotary breaking-plate has projecting teeth or cutters that reduce the coal while the same rests against stationary breaking-plates. The rotary breaking-plate is perforated to enable the reduced coal to pass through its meshes upon a rotary disk, from which the larger pieces are by centrifugal force thrown into a chute, the smaller passing through a stationary raker, and then off the edges of the disk, and the smallest through the meshes of the disk, which is also perforated.

In the accompanying drawing, the letter A represents the frame of my improved coal-breaking machine. B is a cylindrical curb or shell, of sheet metal or other material, projecting downward from the upper plate or platform C of the frame A. D is a vertical shaft hung in the frame A in line with the axis of the curb B, and rotated by suitable mechanism. Upon this shaft is mounted a circular screen or breaking-plate, E, within the curb, and large enough to reach nearly to the inner circumference thereof. From this disk E project teeth or cutters *a a* at suitable intervals and in series of rows, said teeth being so spaced that they will, when the shaft is revolved, pass between the teeth of a stationary breaking-plate or series of stationary plates, F, suspended from the platform C. There are chutes or openings *b* in the platform for feeding the coal upon the disk E. Beneath the disk E is mounted upon the shaft D another

circular screen or plate, G, slightly smaller in diameter than E. H is a stationary raker, fastened to the frame A, and projecting through an opening of the curb B into the same above the disk G. This raker is toothed or notched, as shown in Fig. 2. The plate G, it will be seen, is still within the curb B, though nearly in line with the lower end of the same. *d* is a discharge-chute, fastened to the frame A in line with the disk G, and with a discharge-opening in the curb B.

The operation of the machine is as follows: The coal is delivered in lumps from the mines, in any convenient way, to the landing or platform C over the breaker, and thrown through the openings *b* down the chutes against the breaking plate or plates F. The revolutions of the horizontal wheel E, in which the teeth or cutters *a* are firmly inserted and secured in any desired manner, bring the cutters in contact with the coal as it lies against the breaking-plate, and separate it into marketable sizes by a clear fracture, which greatly reduces the amount of waste made by the use of the common cylinder-breaker. When the coal is reduced to the desired sizes it drops through the openings in the spaces between the rows of teeth—*i. e.*, through the meshes of the screen E, upon the horizontal screen G below, the revolutions of which, by centrifugal force, throw the coal against the stationary raker H, which stops the larger sizes and directs them out of the opening into the chute *d*, to be conveyed away, while the smaller sizes are passed through the raker and thrown out at the annular open space *e* between the perimeter of the screen G and the curbing A surrounding it; or there may be other rakers with similar openings in the curbing placed at other points on the screen; or the smaller sizes of coal may be passed through the meshes of this one screen G to others below having meshes of reduced size, and thus adapted to the separation of all the kinds of coal desired.

I do not limit myself to the number of teeth or breaker-wheels and screens shown in the drawing, as it is evident that additional ones may be attached to the vertical shaft, and the cutters may be arranged below as well as above the wheel. The screens E and G may also be made stationary, and the bearing-plate F and

raker made to revolve with similar results; but the methods here represented have been found most efficient in practice.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A coal-breaking machine composed of the screen E, cutters *a*, and breaking-plate F, the screen revolving and the breaking-plate being stationary, or vice versa, as specified.

2. The separating-disk G and raker H, arranged, in combination with the subject-matter of the foregoing clause, substantially as set forth.

RUFUS A. WILDER.

Witnesses:

CHARLES W. DENGLE,
D. G. SMITH.