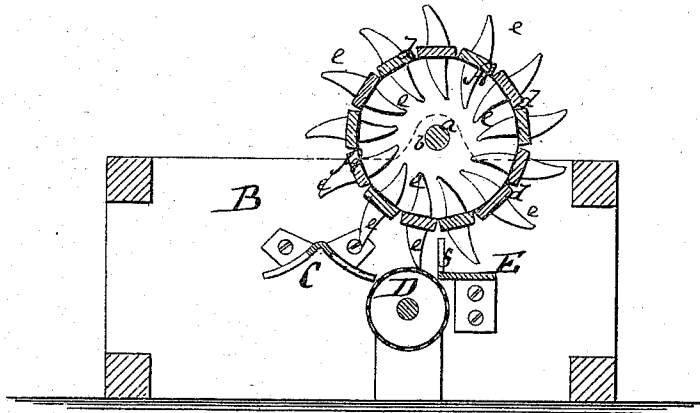


R. A. WILDER.  
Coal-Breakers.

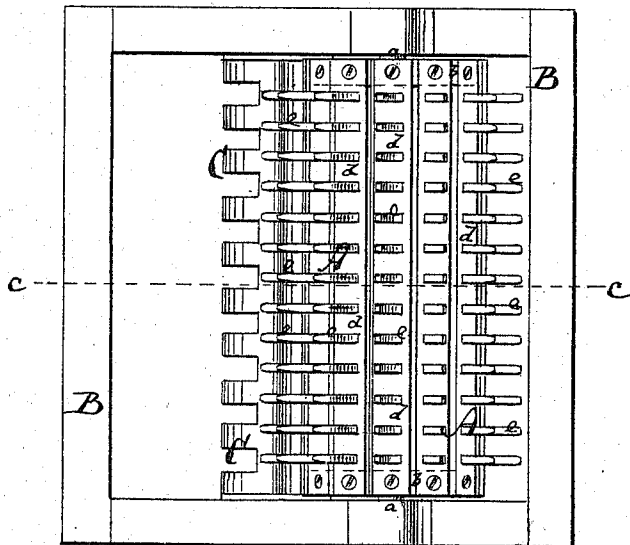
No. 142,426.

Patented September 2, 1873.

*Fig. 1.*



*Fig. 2.*



Witnesses:

*E. Wolff*  
*C. Seagrist*

Inventor:

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Attorneys.

# UNITED STATES PATENT OFFICE.

RUFUS A. WILDER, OF CRESSONA, PENNSYLVANIA.

## IMPROVEMENT IN COAL-BREAKERS.

Specification forming part of Letters Patent No. **142,426**, dated September 2, 1873; application filed October 26, 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 useful Improvement in Coal-Breakers and Cutters for the same, of which the following is a specification:

Figure 1 represents a vertical transverse section of my improved coal-breaker, showing also the system of cutters employed thereon, the line *c c*, Fig. 2, indicating the plane of section. Fig. 2 is a top view of the machine.

Similar letters of reference indicate corresponding parts.

The invention consists in casting teeth on both sides of rack-plate composing the cylindrical breaker, so that the plate can, when the teeth on one side are worn, be reversed and used on the other side.

In the drawing, the letter A represents the cylinder of a coal-breaker hung in a frame, B. The shaft *a* and heads *b* of this cylinder may be of wrought-iron or other material; but the circumference is formed by a series of cast plates, *d d*, which have projecting teeth *e e* on both sides. This breaking-cylinder can be used on breaking-machines of suitable construction, and is not necessarily confined to use on the particular machine illustrated in the drawing. The plates *d* and teeth *e* I prefer to make of cast-steel, to allow, by the use of the stronger material, the teeth to be made more slender, so that the spaces between them may be left nearly as wide at their base as they are at the points. This gives more room for the passage and clearance of the broken coal, and saves a large percentage of waste, which is at present caused by the use of blunt teeth and broad bases. The ends of the plates *d* are, by screws or other means, fastened to the circumference of the heads *b*, so that they can be easily unfastened when necessary. When the teeth on one side of a plate, *d*, are worn or broken, the plate is unfastened, reversed, and refastened for further use. When the teeth on both sides are worn the plate is readily replaced by one not used before. C is a double curved plate, fastened stationary in

the frame B under the cylinder A. D is a rotary screen-cylinder hung under A, and parallel thereto, between the curved plate C and an angular stationary breaker-plate, E. The vertical part of the plate E is toothed, and so placed and spaced that the teeth *e* of the cylinder A pass between the teeth of *f* in revolving. The plate C is also notched or toothed on both sides, as shown, to let the small coal fall through, while the larger is conveyed toward the breaker E by the screen D.

The operation of the machine, as a secondary breaker, is as follows: When the coal has passed from the breaker—*i. e.*, from between two cylinders, A, of which but one is shown, and to which it is fed in the usual manner—it falls upon the double curved plate C placed below the breaker, when the smaller pieces are dropped through, while the larger ones are thrown upon the rotary screens D, and carried by the same against the stationary angular plates E, to be again reduced to a smaller size by the cutters as they pass through the openings of the said plates.

It should be understood that there is a screen, D, and plate E under each of the two cylinders A for the secondary breaking.

This method saves all the waste that is made by bringing the coal in a second breakage between the faces of extra small rollers, which pulverize a large percentage of good coal. These small rollers require all the parts of the mechanism requisite to run the largest breakers, and are therefore more expensive than my plan, which hardly requires any additional mechanism.

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

The cylinder sections or plates *d*, provided with teeth *e*, projecting on opposite sides and made reversible, as and for the purpose specified.

RUFUS A. WILDER.

Witnesses:

CHARLES W. DENGLE,  
D. G. SMITH.