W. BUECHLEY & T. THORN.

Coal-Separator.

No. 163,298. Patented May 18, 1875.

Fig. 1.

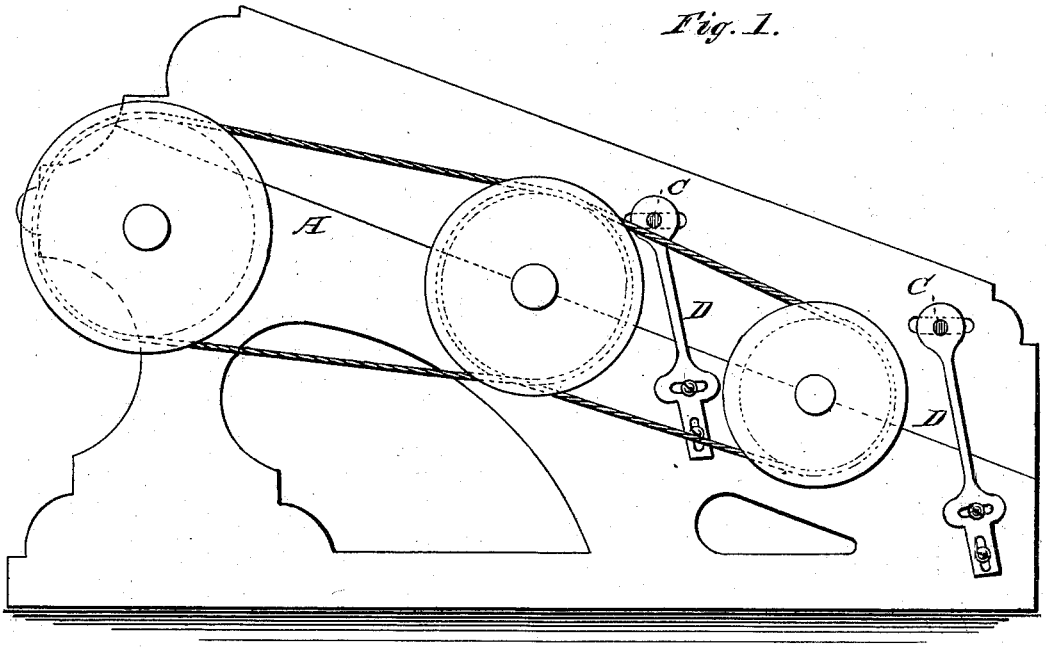
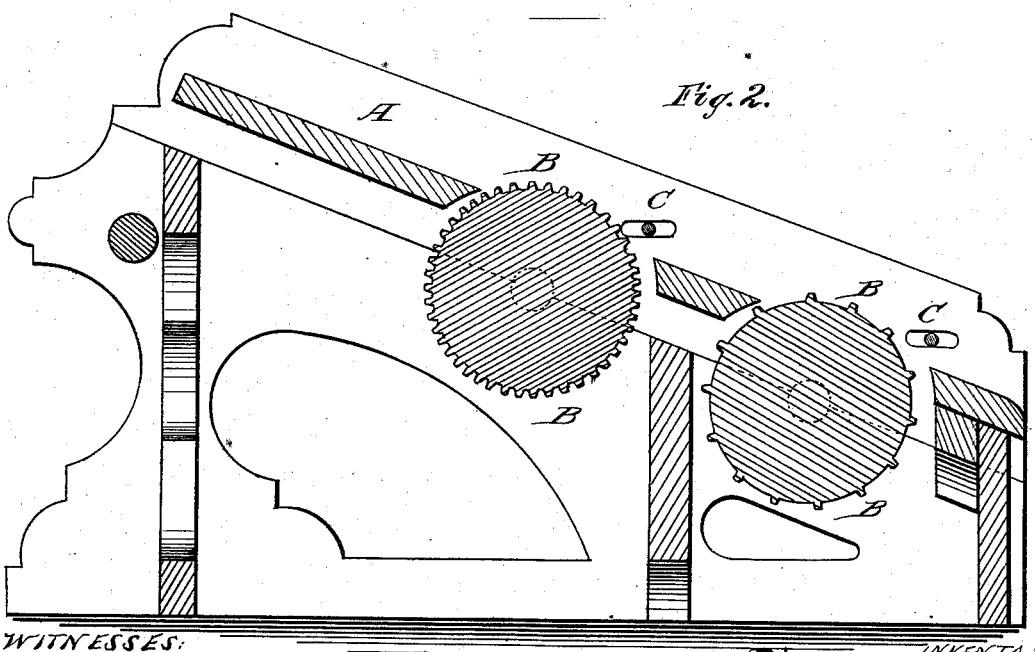


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM BUECHLEY AND THEODORE THORN, OF POTTSVILLE, PA.

IMPROVEMENT IN COAL-SEPARATORS.

Specification forming part of Letters Patent No. **163,298**, dated May 18, 1875; application filed April 15, 1875.

To all whom it may concern:

Be it known that we, WILLIAM BUECHLEY and THEODORE THORN, of Pottsville, in the county of Schuylkill and State of Pennsylvania, have invented certain new and useful Improvements in Coal Separator and Screen; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention relates to the coal-screens or coal-separators used for separating various sizes of coal; and it consists in certain devices placed in the ordinary chute for the purpose of automatically separating the slate from the coal by the two laws of nature, gravity and velocity, as will be hereinafter more fully set forth.

In the annexed drawing, Figure 1 is a side elevation of a chute embodying our invention. Fig. 2 is a longitudinal vertical section of the same.

In devices for separating coal into various grades there is used a large screen divided into any desired number of parts of different-sized meshes, from each of which a chute conducts the coal falling therein into a bin; but, as slate is always in a greater or less proportion mixed with the coal, a number of boys are usually employed to pick out the slate and let the coal alone pass into the bins.

The object of our invention is to effect this separation of the slate from the coal by mechanical means.

A represents one of the chutes as ordinarily used. In this we arrange transversely two or more fluted rollers, B B, in openings formed in the bottom of the chute. These rollers are rotated by any suitable means at unequal speed—the upper one making about forty-five revolutions per minute, the next one eighty, the third one ninety to one hundred and ten, and so on, according to the size and weight of the coal. The slate being at least twenty-five per cent. heavier than the coal, and its shape being mostly flat, its natural tendency is to work itself through the coal to the bottom as it runs down the chute and comes in contact with the fluted rollers B B. In front of each roller is placed a small iron rod, C, set in spring-arms D D on the outside of the frame A, which spring-arms are slotted, so as to be adjusted up and down to suit the different sizes and specific gravity of the coal in the different veins.

As soon as the mixed coal and slate strikes the rollers it is disturbed from its natural gravity and thrown in extra commotion by the flutes formed on the rollers over which it passes, and the coal, being lighter and of more angular fracture than slate, passes over the rods C into chutes below, while the velocity of the rollers is such as not to raise the slate off from the main rollers, but allows it to pass between the main roller and rod into special chutes or bins made for that purpose.

In case any slate is thrown over the rod C, the board in the bottom of the chute is set so much lower and away from the rod that its own gravity carries the slate into said space, while the same law carries the coal over the open space.

The ribs are to be regulated in width for the different size coals according to their respective specific gravity.

By immersing the separator in water the coal will be washed at the same time as the slate is picked out.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a chute of a coal-separator, two or more fluted rollers transversely in the bottom thereof, with a spring-rod in front of each roller, for automatically separating the slate from the coal, substantially as herein set forth.

2. The combination of the fluted rollers B, rods C, and adjustable spring-arms D in a chute, A, substantially as and for the purposes herein set forth.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

WILLIAM BUECHLEY.
THEODORE THORN.

Witnesses:
DANIEL GEMEMER,
MORGAN FEED.