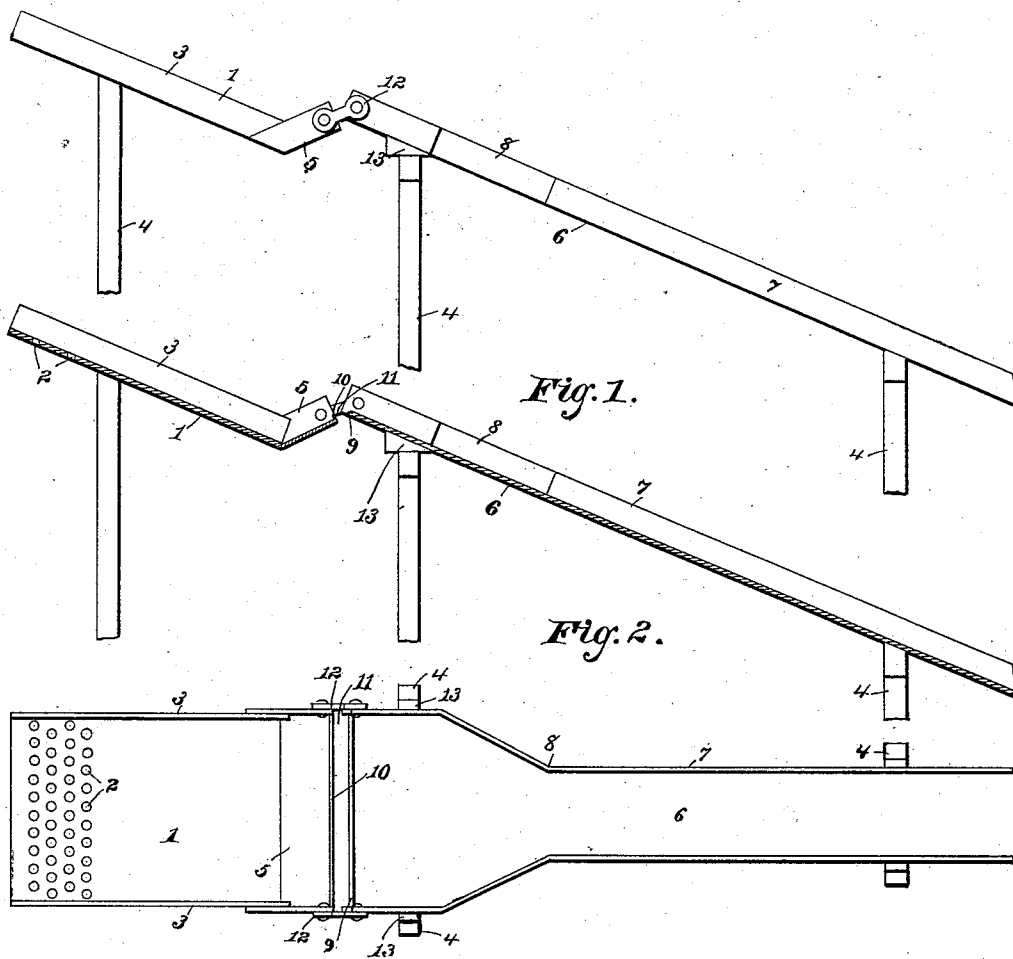


(No Model.)

J. R. RICHARDSON.
COAL SEPARATOR.

No. 532,427.

Patented Jan. 8, 1895.



Witnesses

G. D. Myers
A. E. Grant

Inventor

John R. Richardson
By Joseph P. Atkins
Attorney

UNITED STATES PATENT OFFICE.

JOHN R. RICHARDSON, OF SCRANTON, PENNSYLVANIA.

COAL-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 532,427, dated January 8, 1895.

Application filed December 30, 1893. Serial No. 495,191. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. RICHARDSON, of Scranton, in the county of Lackawanna, State of Pennsylvania, have invented certain new and useful Improvements in Coal-Separators, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to produce a device for thoroughly separating the impurities which occur in coal as it comes from the mine and rendering the separated coal clean and merchantable, ready for market.

In those kinds of separators which are now generally employed, the office of the separator is more or less imperfectly performed, so that in order to thoroughly clean the coal it is necessary to pass it more than once through the separator, or to employ hand pickers to do the work which is left undone by the machine.

By my invention the necessity for more than one cleaning operation is avoided and the work is done in the first instance so as to altogether save the labor of hand picking.

My machine is adapted for use in the cleaning of all grades of coal from hard anthracite to soft bituminous.

In the accompanying drawings: Figure 1 is a side elevation of my machine, showing one form of adjustment. Fig. 2 is a longitudinal section of the same.

Referring to the figures on the drawings: 1 indicates a receiving chute which may be made of suitable shape and dimensions and of suitable material, preferably sheet iron. It is preferably provided with perforations 2 at its upper end over which, in practice, the screen (not illustrated) would be located. It has sides 3 made preferably integral with the chute proper and which serve to confine the material received from the screen within the chute.

4 indicates a suitable frame or trestle which supports the receiving chute at a desirable angle, the width of the angle depending upon the length of the chute employed and the distance which would be permitted for the material to travel over. At the lower end of the receiving chute I provide, at an angle thereto which will afford an abrupt obstruction to the passage of the material through the receiving chute, a deflecting plate 5.

6 indicates a discharge chute whose upper end is of a width equal to the width of the deflecting plate 5. It is provided with sides 7 and is preferably contracted at its lower end, as indicated at 8, though this is an immaterial feature. The discharge chute may be carried upon the trestle or frame 4 at a required angle for imparting motion to the coal through the action of gravity. Its upper edge 9 is, in practice, located parallel to the upper edge 10 of the deflecting plate 5 so as to leave between them a separating slot 11. The width or scope of the separating slot should be variable to adapt the machine for cleaning different sizes of material. For this purpose either the discharge chute 6 or the deflecting plate 5 may be made adjustable, since the object may be accomplished equally well in either way. If the discharge chute is made adjustable the deflecting plate preferably forms a part of the receiving chute. The adjacent ends of the receiving chute and the discharge chute are pivotally united, as by links 12 secured upon opposite ends, while wedges 13, for example, may be employed for adjusting the elevation of the upper end of the discharge chute.

By the term "link connection" I mean any pivotal connecting mechanism which will produce a correlative regulation of the vertical and horizontal distances between the adjacent edges of the deflecting plate and discharge chute, and which renders the movements of the deflecting plate and the discharge chute interdependent.

In the operation of my machine the force of gravity is relied upon to carry the material received from the screen down the receiving chute and to drive it with velocity against the deflecting plate.

It has been suggested that the angle of the receiving chute will depend very much upon its length, the object being to attain the requisite velocity, which may be accomplished by increasing the length of the chute or by increasing the angle of elevation. I prefer to use a long chute where it may be conveniently done.

The other element besides velocity upon which the operation of my machine depends is the comparative weight of the different materials received from the screen. For exam-

ple, if coal is the material to be separated, the usual refuse accompaniment is slate which is much heavier. Consequently, when the coal and slate strike the deflecting plate the one, on account of its lightness, is deflected at a higher angle than the other and the coal bounds clear of the edge 9 of the discharge chute, while the heavier slate is forced through the slot 11. It has been thoroughly demonstrated, in practice, that the properties relied upon for this purpose in connection with my machine may be depended upon to do the work in the manner above described.

What I claim is—

1. In a separating apparatus, the combination with a receiving chute and deflecting plate, and discharge chute, of a link connection between the discharge chute and deflecting plate, whereby the regulation of the vertical and horizontal distances between the

adjacent edges of the deflecting plate and discharge chute is interdependent, an adjustment in one direction being impossible without a corresponding adjustment in the other, and means for accomplishing said adjustment, substantially as specified.

2. In a separating machine, the combination with a suitable support, of a receiving chute and deflecting plate, and a discharge chute, of a link connection between the discharge chute and the deflecting plate, and wedges between the support and the discharge chute for accomplishing the adjustment of the latter, substantially as specified.

In testimony of all which I have hereunto subscribed my name.

JOHN R. RICHARDSON.

Witnesses:

JOSEPH L. ATKINS,

L. G. JULIHN.