

(No Model.)

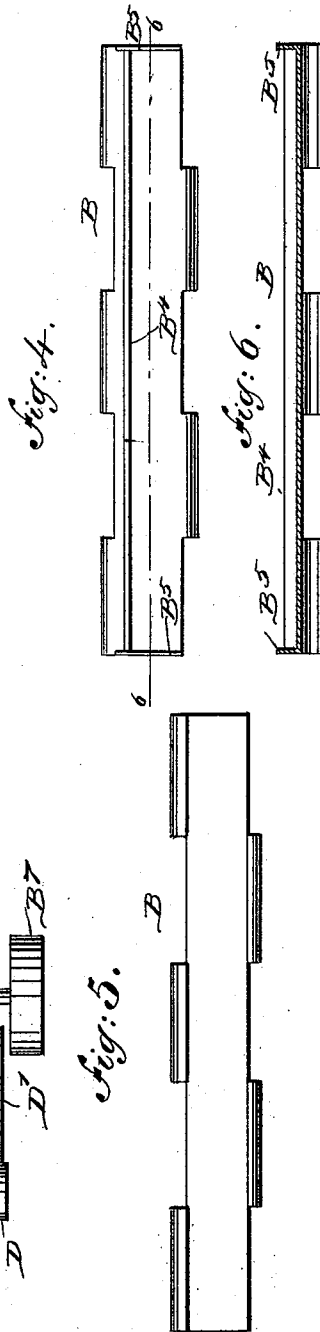
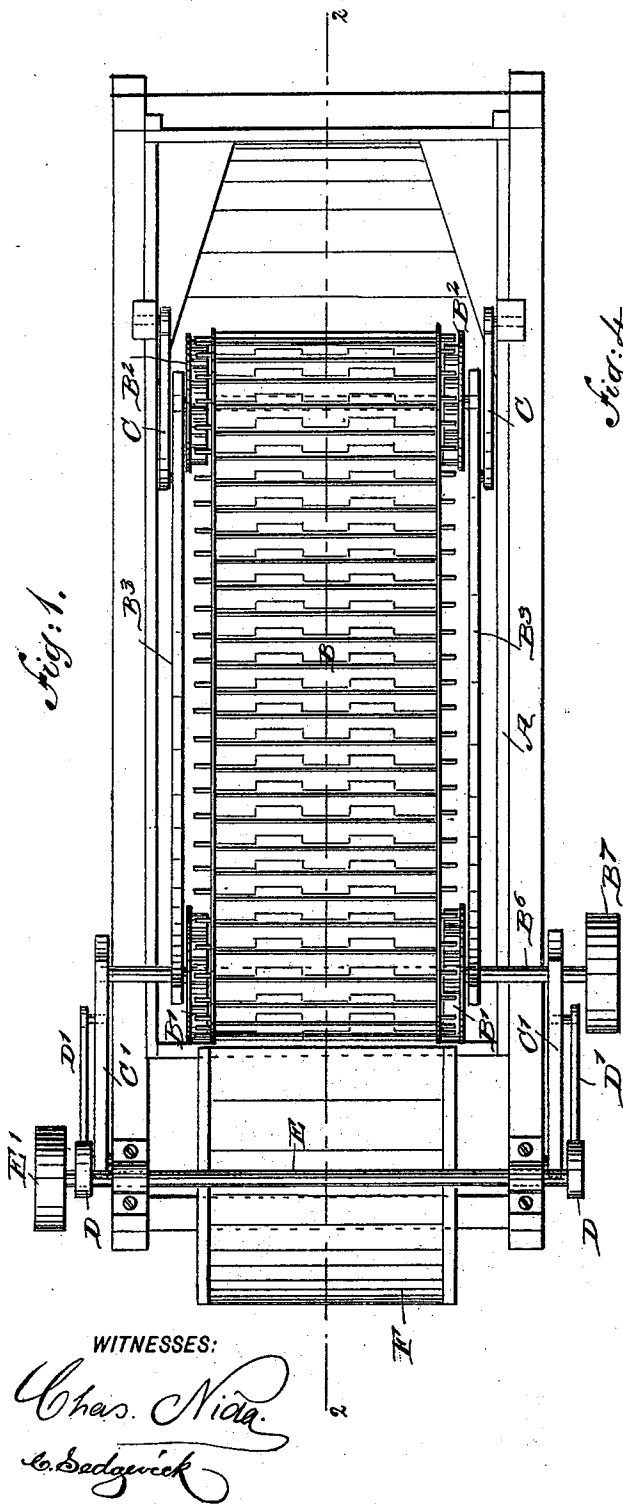
2 Sheets—Sheet 1.

F. PARDEE.

COAL OR ORE SEPARATING APPARATUS.

No. 528,386.

Patented Oct. 30, 1894.



WITNESSES:

Chas. Nida.
L. Sedgewick

INVENTOR

F. Garder

BY

BY *Munn & Co*

ATTORNEYS

(No Model.)

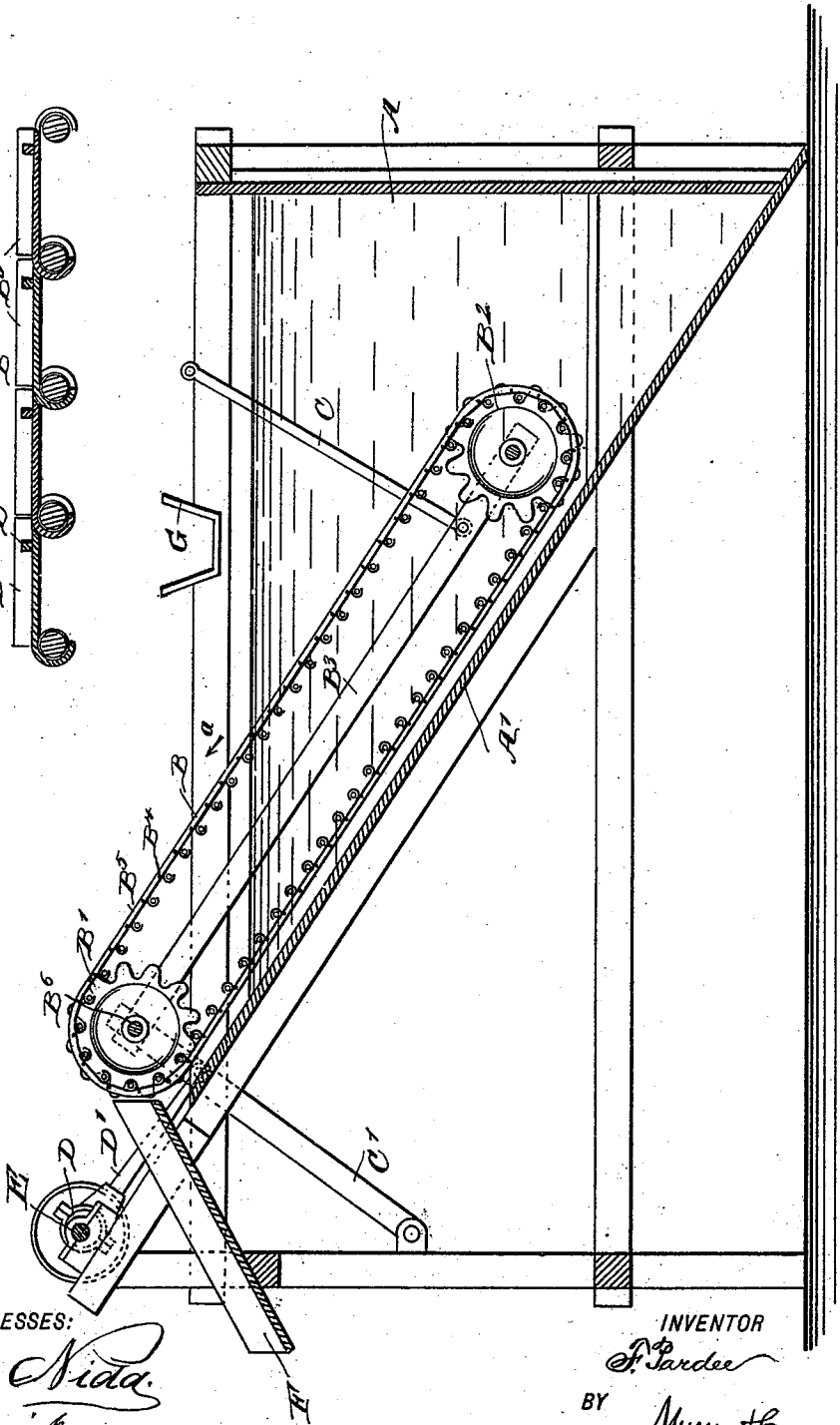
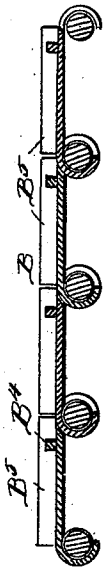
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UNITED STATES PATENT OFFICE.

FRANK PARDEE, OF HAZLETON, PENNSYLVANIA.

COAL OR ORE SEPARATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 528,386, dated October 30, 1894.

Application filed December 20, 1893. Serial No. 494,152. (No model.)

To all whom it may concern:

Be it known that I, FRANK PARDEE, of Hazleton, in the county of Luzerne and State of Pennsylvania, have invented a new and Improved Coal or Ore Separating Apparatus, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved apparatus for conveniently and quickly separating coal from slate and separating ores and other materials from their accompanying impurities.

The invention consists of certain parts and details, and combinations of the same, as will be hereinafter described and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improvement. Fig. 2 is a sectional side elevation of the same on the line 2—2 of Fig. 1. Fig. 3 is an enlarged sectional side elevation of part of the carrier belt. Fig. 4 is a plan view of one of the links of the carrier belt. Fig. 5 is an inverted plan view of the same; and Fig. 6 is a longitudinal section of the same on the line 6—6 of Fig. 4.

The apparatus is provided with a tank A, containing water or other suitable liquid, and preferably provided with an inclined bottom A', as plainly shown in Fig. 2. Into this tank A extends a carrier belt or chain B, adapted to pass over sets of pulleys B' and B² journaled in a frame B³ supported on links C and C', to permit the frame B³ to oscillate within the tank A. The links C' are pivotally connected with eccentric rods D' of eccentrics D, held on a transversely-extending driving shaft E, journaled in suitable bearings on the upper end of the tank A.

The driving shaft E is provided with a suitable pulley E', connected by a belt with other machinery to impart rotary motion to the said driving shaft E, to cause the eccentrics D to impart a swinging motion to the links C', so as to reciprocate the frame B³ and consequently the carrier belt or chain B in the tank A. The carrier belt or chain B is provided on each of its individual links with a

transversely extending rib B⁴, and on its ends with flanges B⁵, to hold the slate or heavier material for removal, as hereinafter more fully described.

The shaft B⁶ of the upper set of pulleys B' for the carrier belt B, carries a pulley B⁷ connected by a belt with suitable machinery to impart a rotary motion to the said shaft B⁶, to cause the chain or belt B to travel in the direction of the arrow *a*. As shown in Fig. 2, the lowermost end only of the carrier belt is preferably immersed in the water contained in the tank A, while the upper end of the belt is outside of the liquid and is adapted to discharge into a chute F, for carrying off the slate or heavier material.

The operation is as follows: The material to be treated is passed down a chute G extending into the tank, so as to deliver the material upon the upper run of the belt B at the point immersed in the water contained in the tank. Now, it will be seen that when the two shafts E and B⁶ are rotated, as above described, a reciprocating motion is given to the belt B and also a traveling motion at the same time, so that the material delivered upon the upper run of the belt is jerked by the reciprocating or shaking motion, to separate the coal or lighter particles or pieces from the heavier particles or pieces, the latter remaining on the transverse ribs B⁴, while the lighter particles or pieces travel downward and settle in the lowermost end of the tank A. The heavier particles or pieces remain on the belt B, and are carried upward and out of the water to be finally discharged over the wheels B' into the chute F, to carry the slate or heavier material from the machine. Thus, it will be seen that the material is carried through the water and is simultaneously subjected in the water to a shaking motion and to a floating action, separating the lighter particles or pieces from the heavier ones, and carrying the latter out of the liquid and out of the tank.

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

1. An apparatus for separating heavy from light material, comprising a tank having an inclined bottom and a delivery chute at the

upper end thereof, an endless traveling belt arranged adjacent and essentially parallel to the inclined bottom, a movable frame in which the said belt is held, and means for imparting
5 a reciprocating motion to the said frame and belt, while the belt travels longitudinally of the frame, substantially as described.

2. An apparatus for separating heavy from light material, comprising a tank, an endless
10 inclined traveling belt located therein, a frame in which the said traveling belt is arranged, links pivoted to the tank and to the

said frame respectively, and a driving mechanism connected to the frame to impart a longitudinal reciprocating swinging motion
15 thereto, while the belt travels longitudinally of the frame and at the same time partakes of the swinging motion of the frame, substantially as described.

FRANK PARDEE.

Witnesses:

A. S. VAN WICKLE,
C. BACHMAN.