

(No Model.)

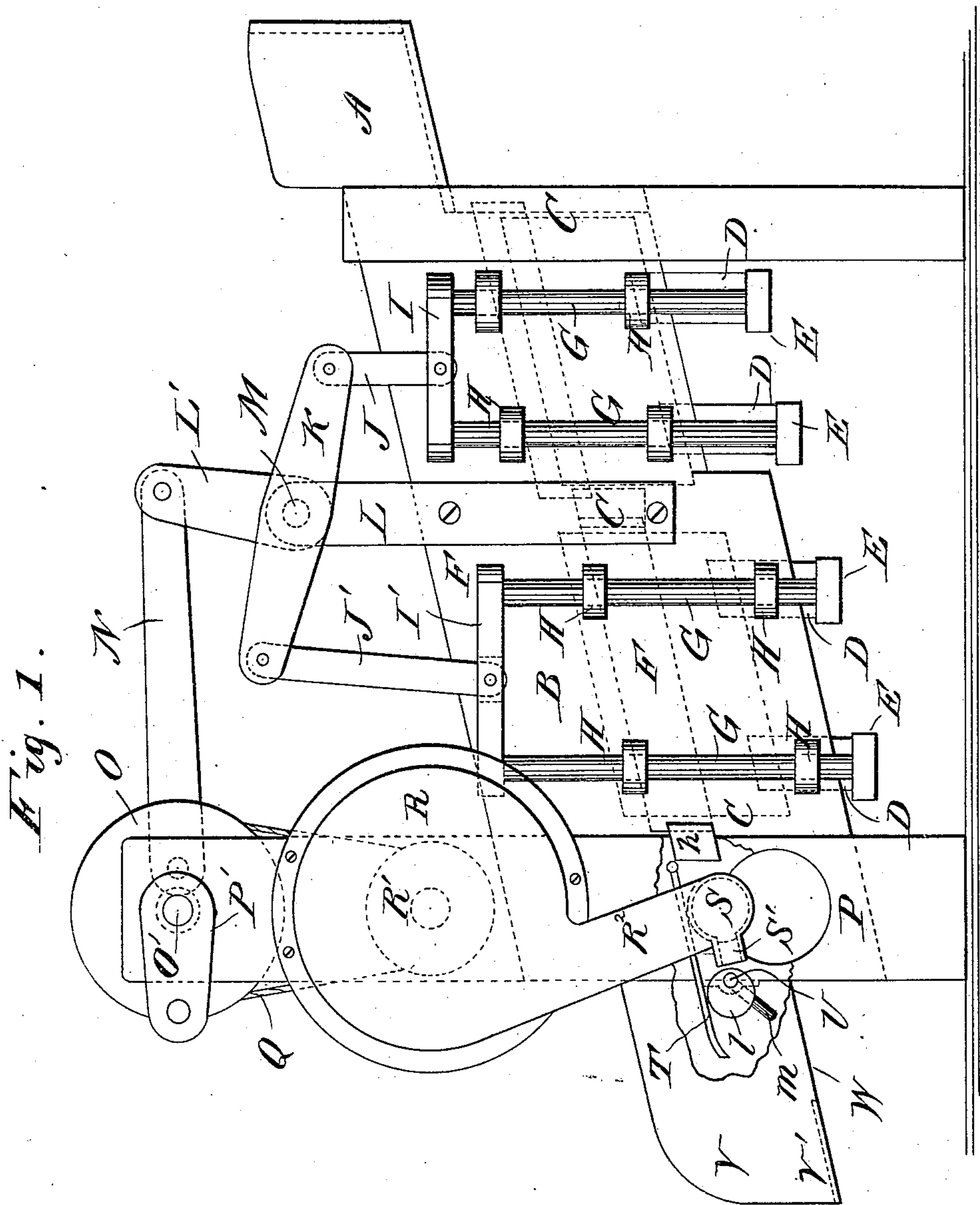
3 Sheets—Sheet 1.

W. H. SHEPHERD.

COAL CLEANER.

No. 308,206.

Patented Nov. 18, 1884.



WITNESSES:

V. H. Ernst.
C. Sedgwick

INVENTOR:

W. H. Shepherd
BY Munn & Co.
ATTORNEYS.

(No Model.)

3 Sheets—Sheet 2.

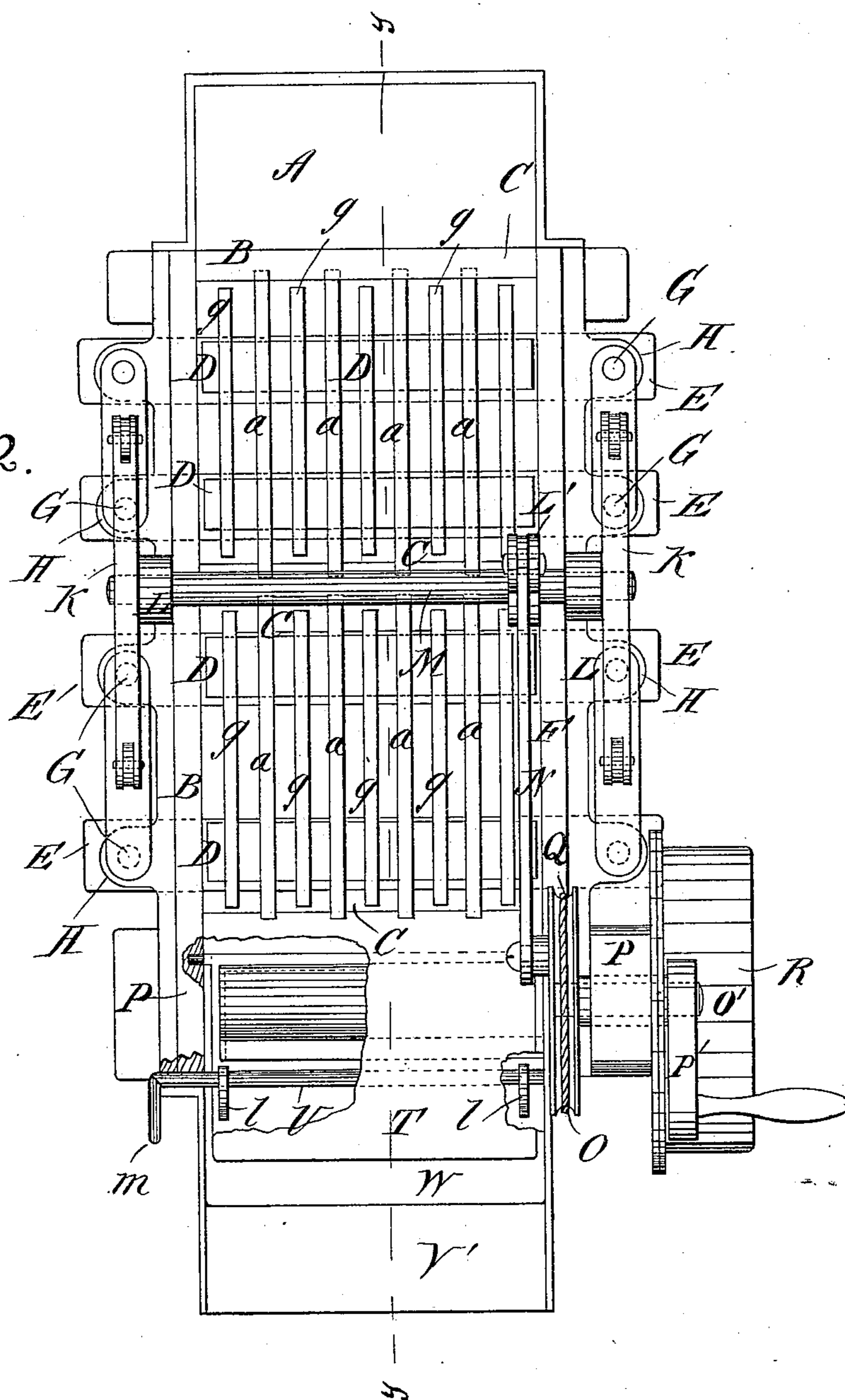
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Fig. 2.



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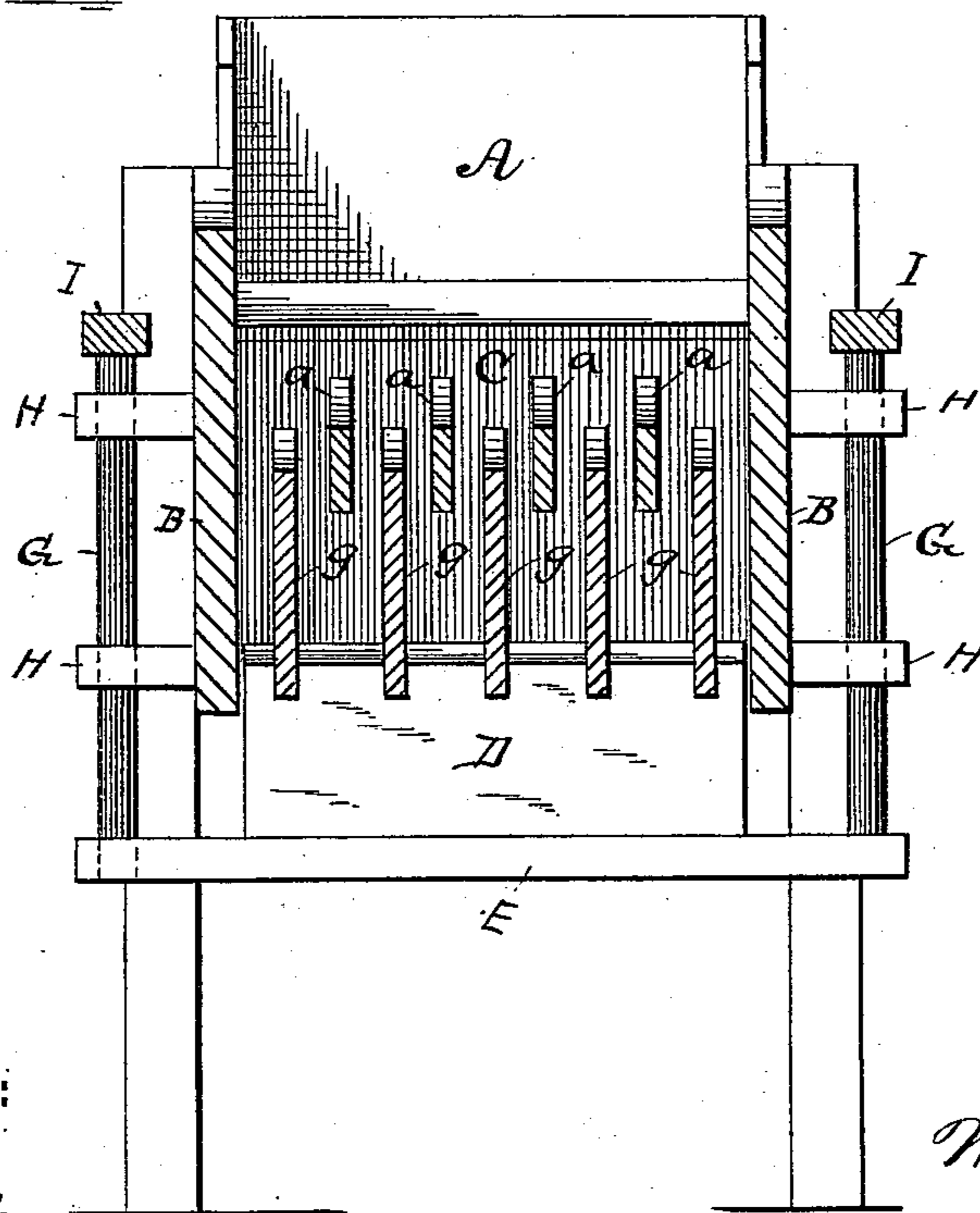
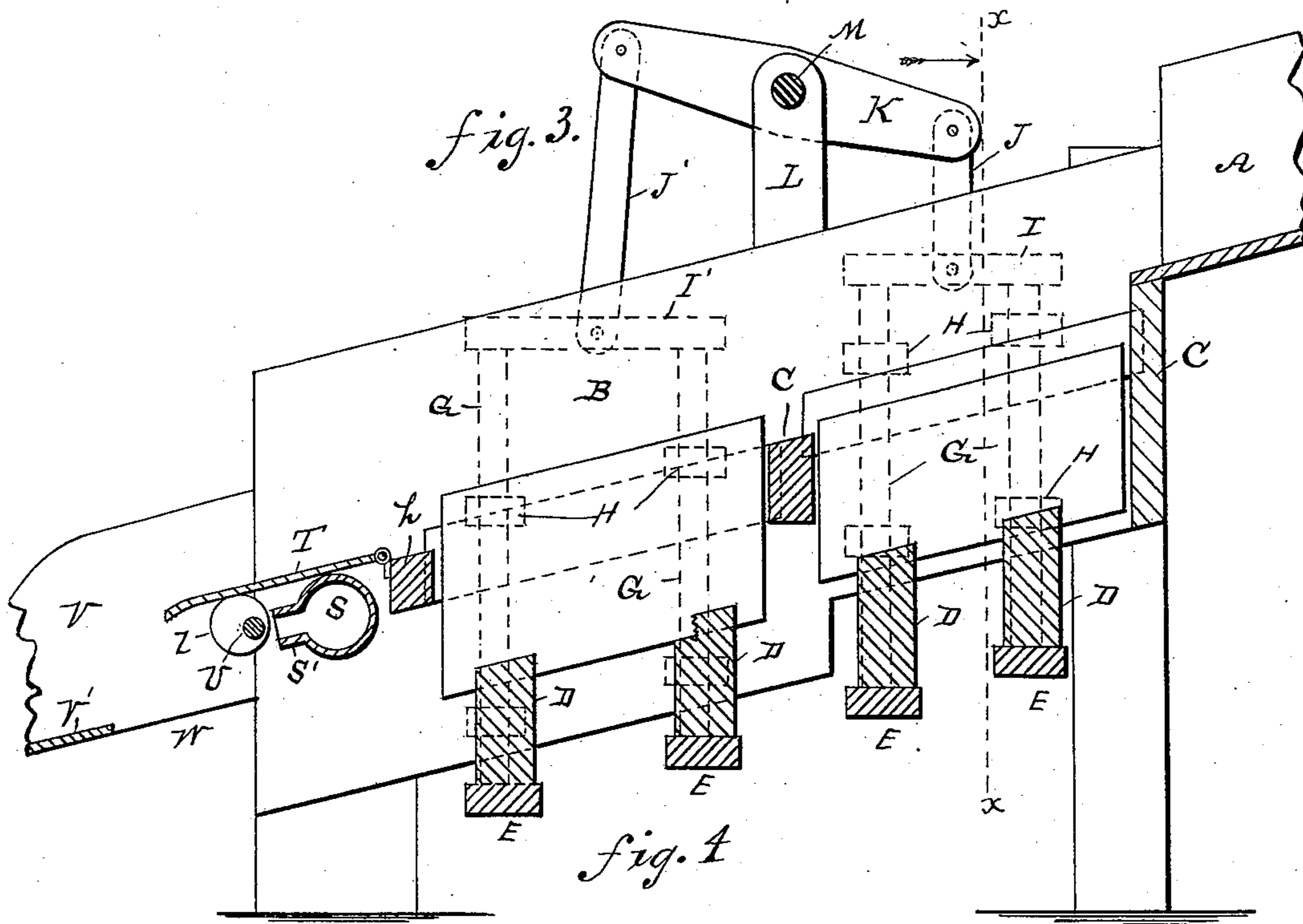
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UNITED STATES PATENT OFFICE.

WILLIAM HENRY SHEPHERD, OF PITSTON, PENNSYLVANIA.

COAL-CLEANER.

SPECIFICATION forming part of Letters Patent No. 303,206, dated November 13, 1884.

Application filed May 22, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HENRY SHEPHERD, of Pittston, in the county of Luzerne and State of Pennsylvania, have invented a new and Improved Coal-Cleaner, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved machine for separating the slate and rocks from coal by means of screens and a current of air.

The invention, which is an improvement on Letters Patent No. 291,788, issued to me on the 8th day of January, 1884, for an improved coal-cleaner, consists in various parts and combinations of the same, as will be fully hereinafter described and claimed.

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

Figure 1 is a longitudinal elevation of my improved coal-cleaner, parts being broken out. Fig. 2 is a plan view of the same, parts being broken out. Fig. 3 is a longitudinal vertical section on line *yy* of Fig. 2. Fig. 4 is a transverse vertical section on line *xx* of Fig. 3.

The coal is delivered on an inclined chute, A, and slides down the same upon the two screens B, formed of a series of longitudinal inclined grate-bars, *a*, secured edgewise on cross-bars C, and between the said bars *a* bars *g* are secured at their lower edges in the upper edges of transverse beams D, placed and secured edgewise on transverse bars E, under the frame or box F, in which the bars C are secured. The bars E are secured to the lower ends of two pairs of rods, G, held to slide vertically in perforated guide-lugs H on the outer sides of the box F. The upper ends of the rods G are united in pairs by bars I I', which are connected by rods J J' with the ends of walking-beams K, pivoted on the upper ends of standards L, secured on the sides of the box F. Both sides of the box are constructed in the manner described. The walking-beams K are connected by a rocking shaft, M, journaled in the standards L, which shaft is provided with an upwardly-projecting arm, L', connected by a rod, N, with a crank-wheel, O, mounted on a shaft, O', journaled in the up-

per end of a standard, P, which shaft is provided at one end with a crank, P', or other device for revolving it. The pulley or crank-wheel O is grooved, and around it a driving belt or cord, Q, passes, which also passes over a pulley, R', of a blower or fan, R, held on one standard, P, and provided with a downwardly-projecting neck, R², which leads to a transverse tube, S, provided on its rear with a spout, S', extending the entire length of the said tube.

On a transverse beam, *h*, uniting the standards P, an inclined apron, T, is hinged, which is located above the tube S and has its free edge inclined downward. The apron T rests on two cams, *l*, mounted rigidly on a transverse shaft, U, journaled on the standards P, and is provided with a handle, *m*. Below and in rear of the apron T a chute, V, is arranged, the bottom V' of which extends from the rear of the chute to a point a short distance in rear of the outer edge of the apron T, whereby a slot, W, or opening is formed in the bottom V' of the chute V.

The operation is as follows: The coal slides from the chute A upon the screens B, the bars *g* of which are worked up and down and cause the coals to slide down the screens B upon the apron T. As the coals slide down the screens, the flat pieces of scale and slate drop down between the bars *a* and *g*. The coals slide down the apron T and jump from the free edge of the same upon the bottom V' of the chute V. The coals, being lighter than the rocks, &c., pass over the opening W upon the bottom V'; but the rocks, which are heavier than the coals, drop through the slot W. To facilitate this separation of the rocks and coals I have provided the blower, which delivers a powerful current of air under the apron, which assists in carrying the coals from the end of the apron upon the bottom V' of the chute, but does not affect the rocks which are too heavy. By means of the cams *l* the free end of the apron can easily be adjusted higher or lower, according to the speed the coals are to have in sliding over the apron T.

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

1. In a coal-cleaner, the combination, with a chute, of screens, an apron below and in rear of the lowest screen, a chute in rear of and below the apron, which is arranged to leave a slot extending from side to side of the apparatus below the free edge of the apron, substantially as herein shown and described.

2. In a coal-cleaner, the combination, with two screens, each composed of alternate stationary and reciprocating bars, and an apron hinged below and in rear of the lower screen, of the fan-blower R, provided with the downwardly-projecting neck R², and the transverse tube S, extending the whole length of said tube, substantially as herein shown and described.

3. In a coal-cleaner, the combination, with the screens B, of the apron T, hinged below and in rear of the lowest screen, the fan-blower R, and the chute V, provided with a transverse slot below the free edge of the apron,

substantially as herein shown and described.

4. In a coal-cleaner, the combination, with the screen B, composed of the stationary and movable bars *a g*, of the walking-beams K, the shafts M, provided with the arm L', the connecting-rod N, the grooved crank-wheel O, the belt Q, the pulley R' on the shaft of the fan-blower, and intermediate mechanism for connecting the walking-beams to the movable bars of the screens, substantially as herein shown and described.

5. In a coal-cleaner, the combination, with a chute and screens, of an apron held below and in rear of the lowest screen, the shaft U, below the apron, the cams *l* on the shaft U, and the handle *m* on the end of the same, substantially as herein shown and described.

WILLIAM H. SHEPHERD.

Witnesses:

S. P. FENN,

MARTIN HINDERLE.