

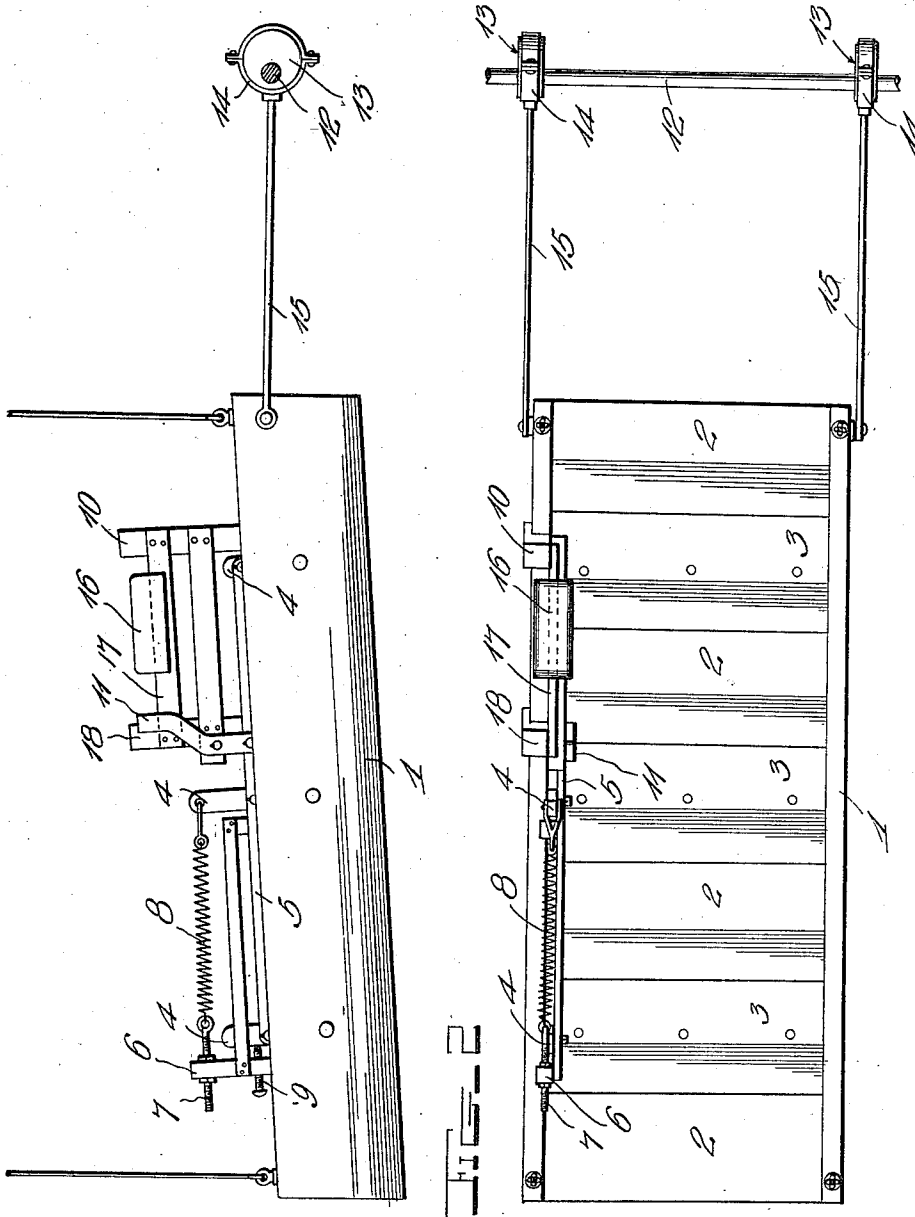
F. H. EMERY.
SHAKER PICKER.

APPLICATION FILED JUNE 17, 1911.

1,013,648.

Patented Jan. 2, 1912.

2 SHEETS-SHEET 1.



Witnesses

E. J. Gardner

U. H. Gardner

Inventor

Frederick H. Emery

By *William D. Deane*

his Attorney

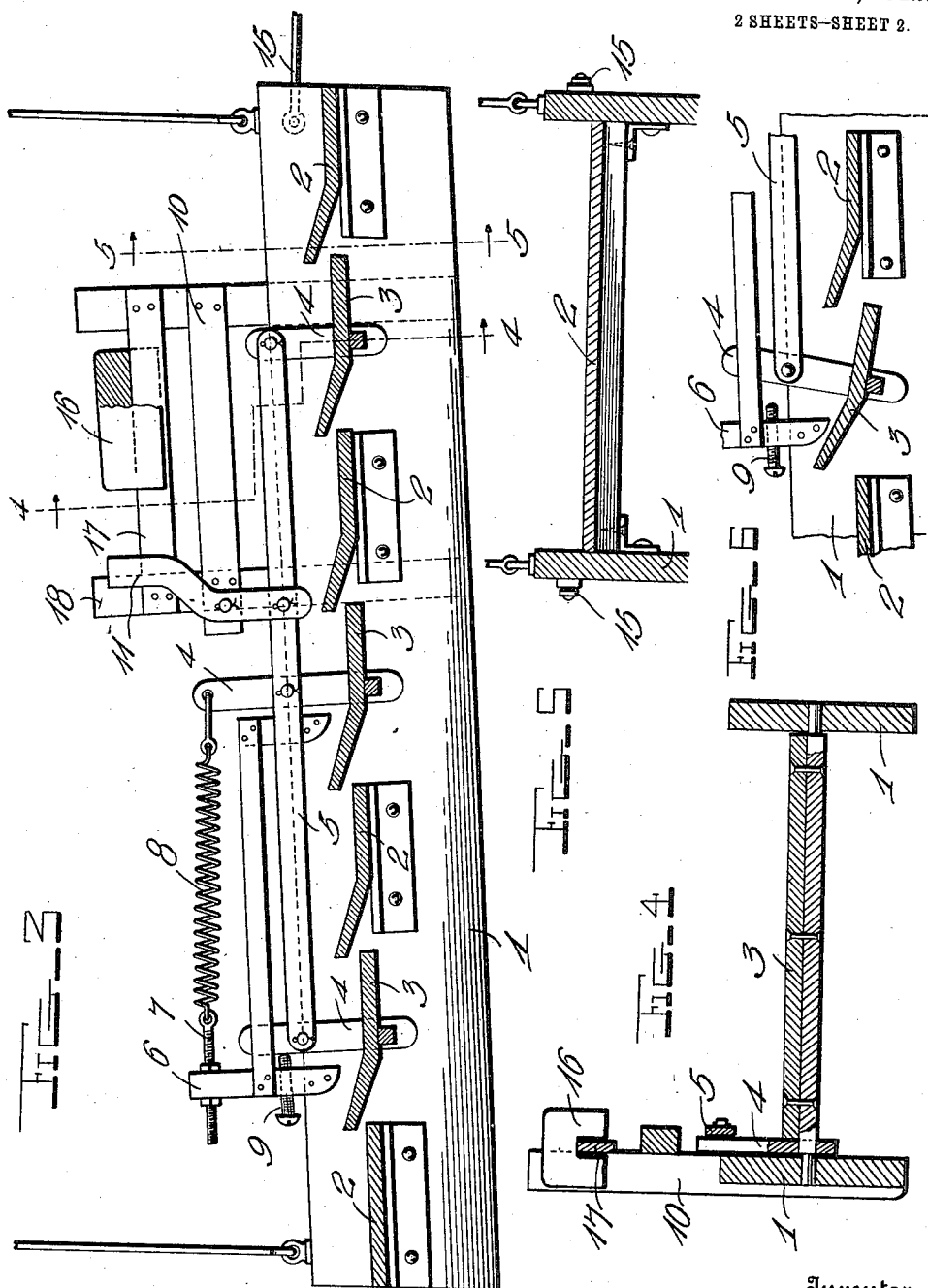
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UNITED STATES PATENT OFFICE.

FREDERICK H. EMERY, OF SCRANTON, PENNSYLVANIA.

SHAKER-PICKER.

1,013,648.

Specification of Letters Patent.

Patented Jan. 2, 1912.

Application filed June 17, 1911. Serial No. 633,766.

To all whom it may concern:

Be it known that I, FREDERICK H. EMERY, citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Shaker-Pickers, of which the following is a specification.

This invention has relation to shaker pickers, and has for its object to provide means for separating slate from coal as the mixed material is passed over the bottom of a trunk mounted for reciprocatory movement.

It has heretofore been the practice to separate slate from coal by passing the mixed material over a trunk having bottom sections spaced apart at their adjacent edges, but great difficulty has been experienced in keeping the spaces between the adjacent edges of the bottom sections free of slate and open to their fullest capacity. This is for the reason that particles of the slate become wedged in the spaces and partially or completely close the same so that it is frequently necessary to stop the operation of the separator and remove the wedged material by hand or otherwise.

The aim of the present invention is to obviate this difficulty by having the bottom sections of the trunk so mounted that at the end of each reciprocation of the trunk each alternate bottom section will have a slight swinging movement on an axis midway between its edges so that any wedged particles will be liberated and the possibility of the spaces between the sections becoming choked or filled with wedged material is absolutely avoided.

With this object in view the structure includes a trunk having fixed bottom sections with pivoted bottom sections located between the said fixed sections. Each pivoted section is provided with an upstanding arm and the arms of all the said pivoted sections are connected together by a rod pivotally connected with the said arms. Means is provided for limiting and adjusting the swing of the said arms and a resilient means is provided for holding the arms and their attached bottom sections in normal positions with relation to the fixed sections. A lever is fulcrumed upon a suitable support and is pivotally connected at its working end with the said rod and is arranged to reciprocate with the trunk. Means is provided for engaging the power end of the

lever at each reciprocation of the trunk so that the lever is swung upon its fulcrum, the rod is moved longitudinally and the arms and pivoted bottom sections are swung with relation to the fixed bottom sections. As is the usual practice the trunk is suspended for reciprocatory movement and any suitable means may be provided for accomplishing this movement, the trunk being inclined in a downward direction from its receiving toward its delivery end.

In the accompanying drawings: Figure 1 is a side elevation, Fig. 2 is a plan view, Fig. 3 a vertical longitudinal section on an enlarged scale. Fig. 4 a vertical transverse section, taken on line 4-4 of Fig. 3. Fig. 5 a similar view on line 5-5 of Fig. 3. Fig. 6 is a fragmentary sectional view, disclosing a different position of the swinging bottom section.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

As illustrated in the accompanying drawing the shaker picker includes a trunk 1 having a series of fixed bottom sections 2. Bottom sections 3 are pivoted at their ends in the sides of the trunk 1 between the fixed sections 2. The receiving edge portions of the pivoted sections 3 are located under the delivery end portions of the fixed sections 2 and the delivery end portions of the pivoted sections 3 are located above the receiving edge portions of the fixed sections 2. The upper surfaces of all of the sections at their receiving end portions are at an angle to the upper surfaces of the delivery edge portions thereof for a purpose which will be explained hereinafter.

An arm 4 is carried at the end of each of the pivoted sections 3 and extends upwardly along one of the sides of the trunk 1. A rod 5 pivotally connects all of the arms 4 together so that the said arms are constrained to move in the same direction simultaneously.

A post 6 is mounted upon one of the sides of the trunk 1 and a hook bolt 7 is adjustably mounted on the said post. A coil spring 8 is connected at one end with the said bolt and at its other end with one of the intermediate arms 4 and is under tension with a tendency to hold the upper end of the said arm toward the said post. An adjusting screw 9 is threaded through the post 6 and has one end in the path of movement of

the lower terminal arm 4 of the set of arms. A frame 10 is supported upon that side of the trunk 1 which supports the post 6 and a lever 11 is fulcrumed to the said frame.

5 The lower or working end of the lever 11 is pivotally connected to the rod 5.

Any suitable means may be provided for reciprocating the trunk 1 which is suspended in inclined position. The means shown consists of a shaft 12 journaled for rotation and carrying eccentrics 13. Straps 14 surround the eccentrics 13 and are connected by means of rods 15 with the trunk 1. Therefore it will be seen that as the shaft 12 rotates the
15 eccentrics, straps and rods 15 will reciprocate the trunk 1.

Any suitable means may be provided for swinging the lever 11 upon its fulcrum as the trunk 1 reciprocates. Such means may
20 be a tappet supported upon a fixed object and located in the path of movement of the power end of the lever and against which the said end will strike as the lever reciprocates with the trunk 1. Or the said lever
25 may carry at its power end a weight which by inertia will cause the lever to swing as the trunk 1 changes its direction of movement while reciprocating. The specific means shown for causing the lever to swing consists of a weight 16 which is slidably mounted upon the top rail 17 of the frame 5. This rail is disposed approximately at a right angle to the upper end portion of the lever 11 and the movement of the weight 16 is limited by the end post 18 of the said frame.
35 Therefore it will be seen that as the trunk 1 is reciprocated in the manner as above described, at the end of each reciprocation the weight 16 will come in contact with the upper end of the lever 11 and by force of impact will swing the said lever upon its fulcrum which in turn will move the rod 5 longitudinally and swing the arms and the pivoted sections 3 as hereinbefore described.
40 Therefore as the mixed coal and slate pass down over the bottom sections 2 and 3 of the trunk 1 the slate which works back toward the rear edges of the said sections will not become wedged in the openings between the adjacent sections for the reason
50 that each alternate section has a swinging movement and therefore the transverse sectional area of the openings between the said sections does not remain constant and the slate may readily pass through the said openings and separate from the coal. The nature of the coal is such that it will readily roll or pass over the bottom sections of the trunk while the slate has a tendency to cling
60 to the said bottom sections, and when it encounters the angularly disposed portions of the upper surfaces of the sections at the lower edges thereof it is worked back by the

reciprocatory movement of the trunk toward the openings between the fixed and pivoted sections. Thus the coal freed from the slate
65 is delivered from the trunk at the lower end thereof, while the slate falls from the trunk through the spaces between the bottom sections thereof and the separation is thoroughly and effectually accomplished. At the same time the annoyance and inconvenience of having the slate or other material choke or reduce the transverse sectional area of the openings between the bottom sections
75 of the trunk are positively and absolutely eliminated.

Having thus described the invention, what is claimed as new is:

1. A picker comprising a trunk, bottom
80 sections pivoted therein, arms mounted upon the bottom sections, a rod pivotally connecting the arms together, means for moving the rod longitudinally as the trunk reciprocates, a post mounted upon the trunk, and a member adjustably mounted upon the post and located in the path of movement of one of the arms to limit the swinging movement of the bottom sections.

2. A picker comprising a trunk, bottom
90 sections pivoted therein, arms carried by the bottom sections, a rod pivotally connecting the bottom sections together, means for moving the rod longitudinally as the trunk reciprocates, means for limiting the swinging
95 movement of the bottom sections, and means for resiliently holding the bottom sections in normal position.

3. A picker comprising a trunk mounted for reciprocation, bottom sections pivoted
100 therein, arms carried by the bottom sections, a rod pivotally connected with the arms, means for moving the rod longitudinally as the trunk reciprocates, means for limiting the swinging movement of the bottom sections,
105 and an adjustable resilient means for holding the bottom sections in normal position.

4. A picker comprising a trunk mounted for reciprocation, bottom sections pivoted
110 therein, arms carried by the bottom sections, a rod pivotally connecting the arms together, a frame carried by the trunk, a lever fulcrumed to the frame and having its working end pivoted to the rod, and a
115 weight slidably mounted upon the frame, the power end of the said lever projecting into the path of movement of the said weight.

In testimony whereof I affix my signature 120 in presence of two witnesses.

FREDERICK H. EMERY.

Witnesses;

A. L. HOUGH,
THOS. R. HUGHES.