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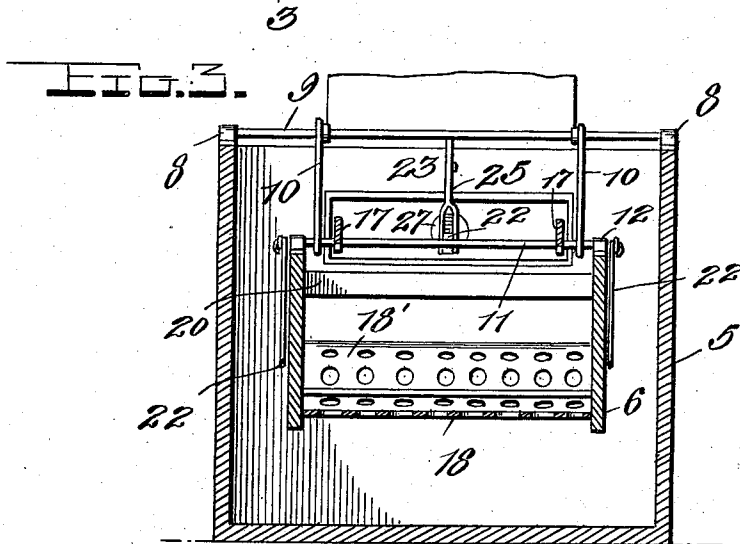
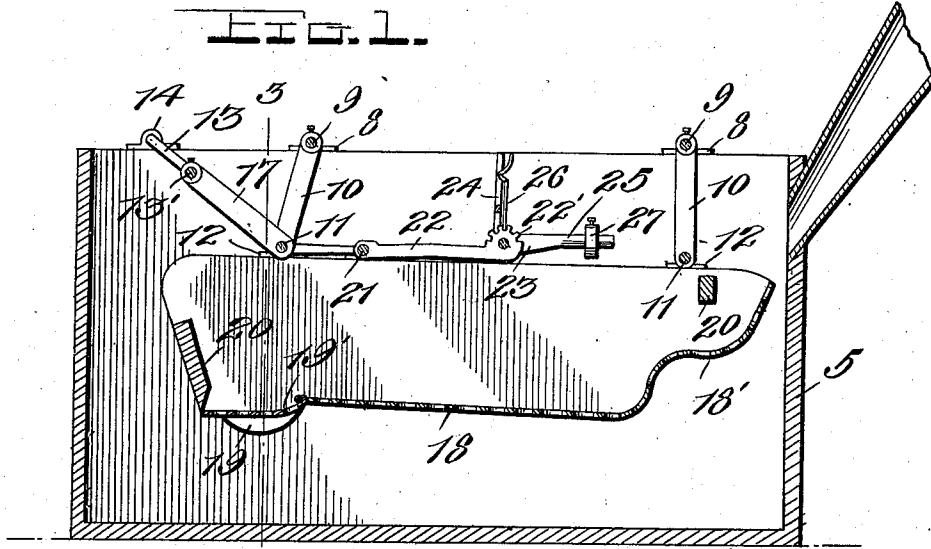
JIG.

APPLICATION FILED OCT. 29, 1910.

1,014,308.

Patented Jan. 9, 1912.

2 SHEETS—SHEET 1.



Witnesses

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M. F. Pearl.

Inventors

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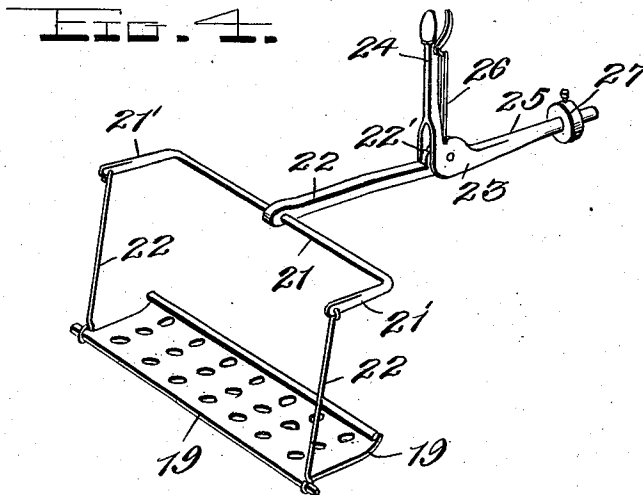
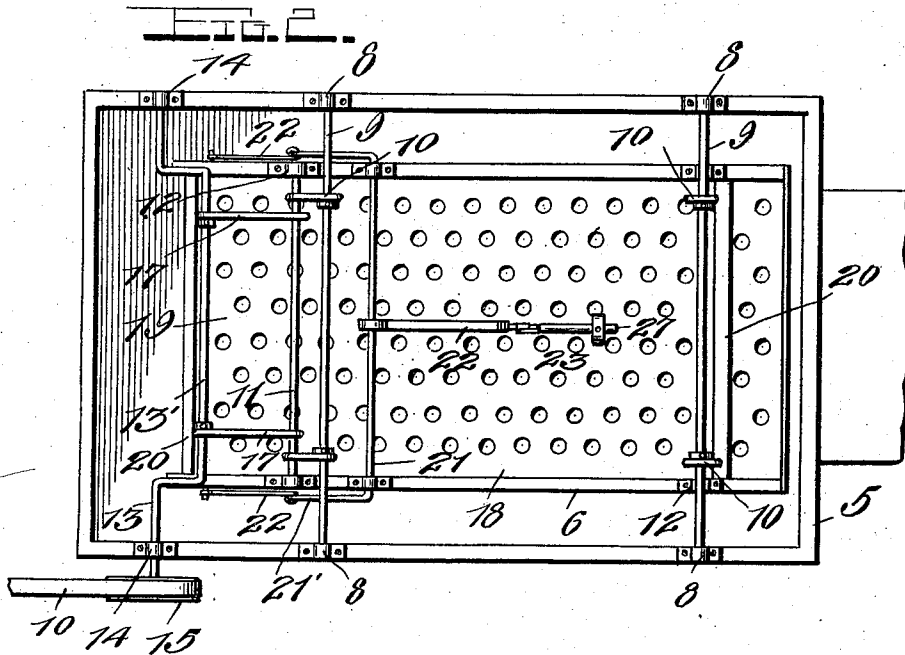
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2 SHEETS—SHEET 2.



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE W. KELLER, CHARLES BRASSINGTON, AND ABRAHAM BRASSINGTON, OF
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JIG.

1,014,308.

Specification of Letters Patent.

Patented Jan. 9, 1912.

Application filed October 29, 1910. Serial No. 589,772.

To all whom it may concern:

Be it known that we, GEORGE W. KELLER, CHARLES BRASSINGTON, and ABRAHAM BRASSINGTON, citizens of the United States, residing at Aristes, in the county of Columbia and State of Pennsylvania, have invented certain new and useful Improvements in Jigs, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improved coal washing jig for separating slate from coal or other materials having different specific gravities.

The primary object of the invention resides in the provision of a slate discharging gate hingedly mounted in one end of an oscillatory receptacle, and means whereby said gate is automatically opened under the weight of the material thereon, said means being adjustable to vary the required weight for the opening of the gate.

A further object of the invention is to provide an oscillatory receptacle and a gate mounted in one end thereof and normally closed by means of a weight, said weight being adjustable whereby the gate is opened under the varying weight of material thereon.

With these and other objects in view, the invention consists of the novel features of construction, combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of a coal washing jig embodying our improvements; Fig. 2 is a top plan view; Fig. 3 is a section taken on the line 3—3 of Fig. 1; and Fig. 4 is a detail perspective view of the gate and the parts associated therewith.

Referring in detail to the drawing 5 designates a tank in which the reciprocary receptacle 6 is mounted. This tank is preferably rectangular in form and is provided with bearings 8 upon its upper longitudinal edges. In these bearings the transverse rods 9 are mounted and hanger arms 10 are loosely engaged upon said rods at one of their

ends and upon similar rods 11 mounted in the bearings 12 on the upper longitudinal edges of the receptacle 6. A crank shaft 13 is mounted in the bearings 14 on the forward end of the water tank 5 and upon one end of this shaft a band wheel 15 is secured which is adapted to be connected by means of the driving belt 16 to a motor or any other suitable source of power. The intermediate crank portion 13' of the shaft is connected by means of the links 17 with the rod 11 which is arranged upon the forward end of the receptacle 6.

It will be observed upon reference to Fig. 1 that in the normal position of the receptacle 6, the hangers 10 which connect the forward end thereof and the supporting rod 9 are inclined slightly in a forward direction, thus supporting the forward end of the receptacle at a higher elevation than the rear end thereof. By thus mounting the receptacle, a greater drop of the front end of the receptacle is secured than of the rear end thereof thus effecting the proper separation of the slate and coal. This is necessary as the front end of the receptacle contains a greater quantity of slate and coal than the rear end thereof. It consequently requires a greater agitation of the front end of the receptacle to move this heavier body of material than it does in the rear end where the coal is lighter. As the receptacle is oscillated, the coal by the action of the water is floated while the heavy slate moves forwardly. It has heretofore been a difficult matter to discharge the slate from the receptacle fast enough so as to prevent discharge of the coal with the slate. This difficulty is overcome by the manner in which we mount the receptacle and the proper agitation of the same is obtained so as to effect the movement of the slate at the right time, or when the coal is floated.

The receptacle 6 is provided with a foraminous bottom plate 18, the rear end of which is curved as shown at 18', thus lessening the depth of the receptacle at this end. The coal is fed into the receptacle from a suitable hopper at the rear end there-

of and is first separated at this point, the action of the water in the oscillation of the receptacle floating the coal while the heavier particles of slate drop upon the bottom plate 18. This slate is moved over the bottom of the receptacle in the manner above described toward the slate gate 19 which is hinged upon the lower longitudinal edges of the receptacle at the forward end thereof. The sides of the receptacle are rigidly secured together and braced by means of the transverse bars 20. Upon the upper edges of the sides of the receptacle a shaft 21 is mounted having a crank 21' on each end thereof. Rods 22 connect the cranked ends of this shaft with the ends of the slate gate 19. An arm 22 is rigidly fixed upon the center of the crank shaft 21 and extends rearwardly thereof. Upon the extremity of this arm a rack 22' is formed and a V-shaped member 23 is pivotally mounted upon said rack. The connecting portion of said member at the juncture of the arms 24 and 25 is bifurcated to receive the rack 22' and the arm 24 is formed into a lever which carries a spring pressed dog 26 for engagement with the teeth of the rack. The other arm 25 has removably fixed thereon a weight 27. This weight tends to rotate the crank shaft and elevate the cranked ends thereof, thus holding the slate gate 19 closed under normal conditions. The gate 19 at its hinged edge is curved as shown at 19' so that the water may freely enter through the perforations thereof, said gate being foraminated in a similar manner to the bottom plate of the receptacle. It will be obvious that by adjusting the member 23 upon the arm 22 so as to move the weighted arm 25 of said member forwardly or rearwardly, the amount of material which must be deposited upon said gate to open the same may be varied.

In the operation of the machine, water may be supplied to the tank 5 from any suitable source until it reaches a level about midway between the upper and lower longitudinal edges of the sides of the receptacle 6. As the receptacle is oscillated, this water is agitated so that it surges within the tank through the perforations of the bottom plate 18. As the coal and slate are deposited in the rear end of the receptacle, the coal is floated by the jets of water which enter through the perforations in the rear curved end of the bottom plate which strikes the water with considerable force in the oscillatory movement of the receptacle. When the forward end of the receptacle has been elevated, the sudden downward and rearward movement of the same after the crank shaft 13 passes its center causes the slate which has dropped upon the bottom plate to move forwardly over the same toward the slate

gate 19. The front edge of this gate engages the forward cross bar 20 which is arranged between the sides of the receptacle and prevents any escape of the slate until a sufficient quantity has accumulated thereon to actuate the gate. The weight 26 and the arm on which it is mounted are finally overcome by the weight of the slate and the gate 19 opens. By providing the curved edge portion on the slate gate, the water may freely flow through the perforations thereof and thoroughly wash out the slate as soon as the gate opens while the coal is held up or floated so that it is kept entirely separated from the slate and is not discharged from the receptacle by the opening of the gate.

From the above it is thought that the construction and operation of our improved jig will be readily understood.

By providing the weight supported gate and the means for adjusting the weight, the gate may be caused to drop by the accumulation of varying amounts of slate thereon.

While we have described our machine as particularly adapted for the washing of coal and the separation of the slate from the same, it will also be apparent that the machine may be utilized for the separation of ores and various other materials having different specific gravities.

The machine may be operated with a minimum expenditure of power and is very efficient in practical operation.

Owing to the fact that but few parts are utilized in its construction it will also be evident that the jig may be constructed at a comparatively low cost.

While we have shown and described the preferred construction and arrangement of the various parts, it will be obvious that the machine is susceptible of considerable modification without departing from the essential feature or sacrificing any of the advantages thereof.

Having thus described the invention what is claimed is:—

In a machine of the character described, the combination with a receptacle, of a transversely disposed gate hingedly mounted at one of its edges upon the bottom of said receptacle and at one end thereof, a shaft rotatably mounted upon said receptacle having a crank arm formed on each end, rods connected to the ends of said arms and to the opposite ends of said gate at its free edge, an arm rigidly fixed centrally upon said shaft and normally disposed in a horizontal plane, said arm having a rack formed on one end, a lever pivotally mounted upon said rack and having an arm integrally formed therewith extending substantially at a right angle to the lever, said lever carrying a spring actuated dog for engagement

with the teeth of the rack, a weight on the arm of said lever, the angular adjustment of the lever arm with relation to said horizontal arm determining the weight necessary to move the gate to its open position, and means for adjusting the weight on the lever arm to further control the movement of said gate.

In testimony whereof we hereunto affix

our signatures in the presence of two witnesses. 10

GEORGE W. KELLER.
CHARLES BRASSINGTON.
ABRAHAM BRASSINGTON.

Witnesses:

JAMES B. CLEWS,
WILLIAM FLANAGAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."