C. V. KING.

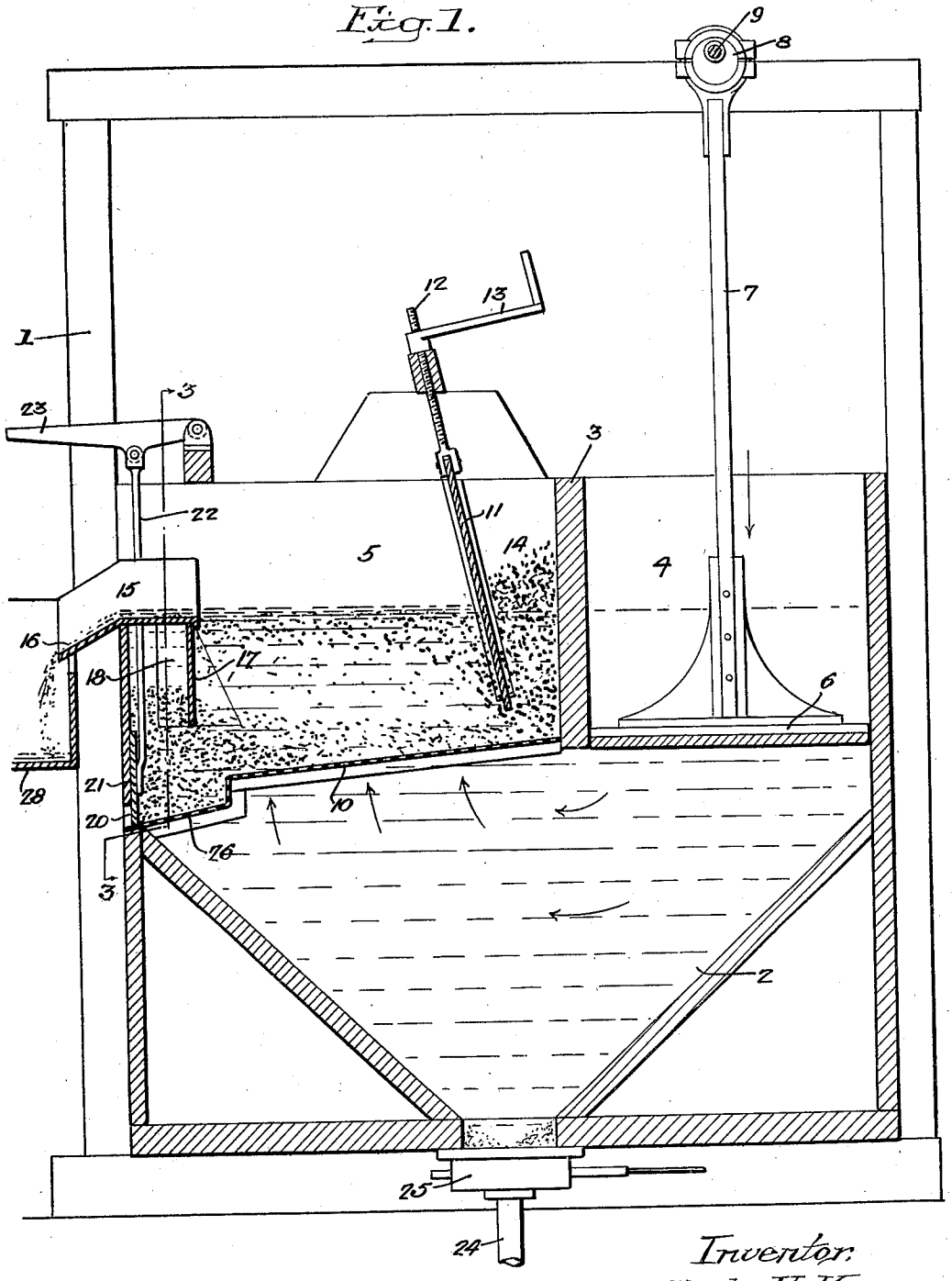
JIG FOR SEPARATING COAL AND LIKE MATERIAL FROM FOREIGN MATTER.

APPLICATION FILED APR. 17, 1919.

1,360,116. **Patented Nov. 23, 1920.**

2 SHEETS—SHEET 1.

Fig. 1.



Inventor:
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by his Attorneys,
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2 SHEETS—SHEET 2.

Fig. 2.

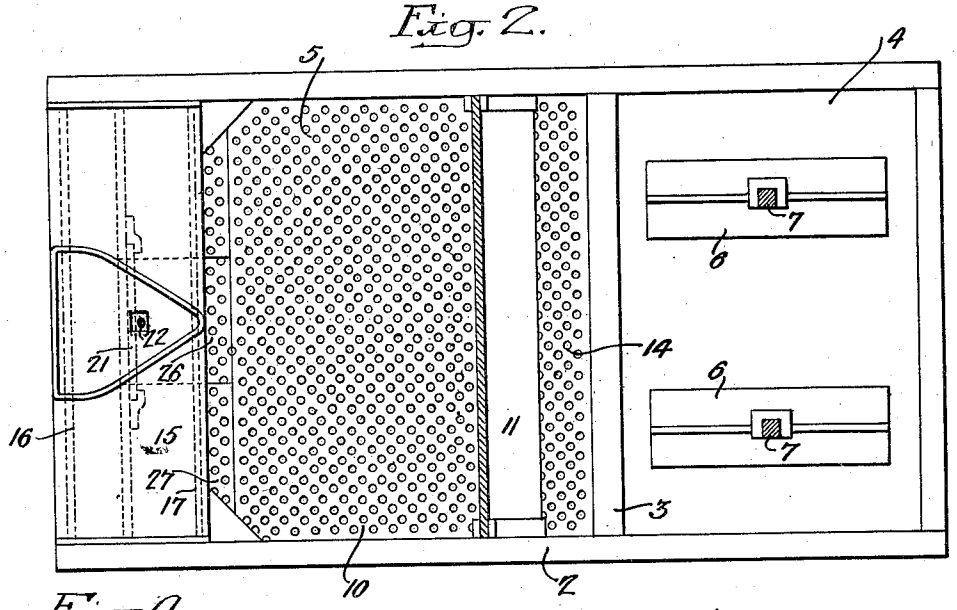


Fig. 4.

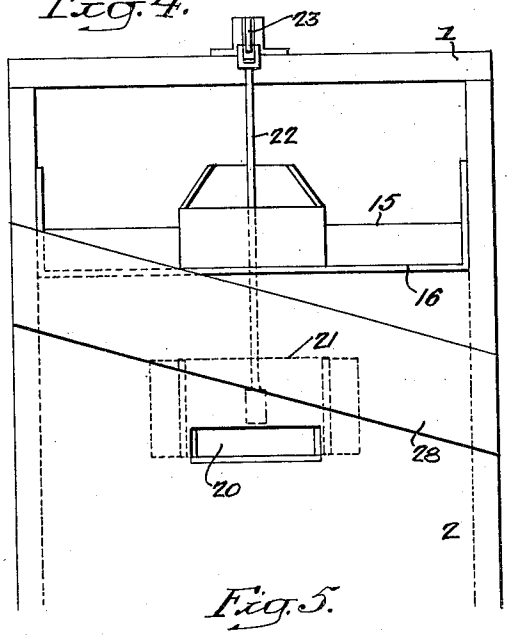


Fig. 3

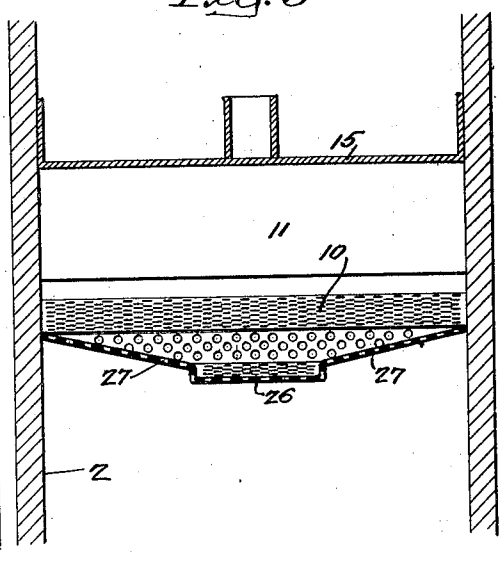
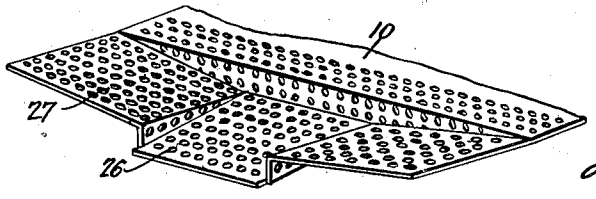


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES V. KING, OF SHENANDOAH, PENNSYLVANIA.

JIG FOR SEPARATING COAL AND LIKE MATERIAL FROM FOREIGN MATTER.

1,360,116. Specification of Letters Patent. Patented Nov. 23, 1920.

Application filed April 17, 1919. Serial No. 290,661.

To all whom it may concern:

Be it known that I, CHARLES V. KING, a citizen of the United States, and a resident of Shenandoah, county of Schuylkill, State of Pennsylvania, have invented certain Improvements in Jigs for Separating Coal and like Material from Foreign Matter, of which the following is a specification.

The object of my invention is to construct a jig which will more completely separate coal from slate, sand, and other foreign matter than heretofore, and in which the amount of coal carried with the waste material is reduced to a minimum.

The invention also relates to certain details of construction which will be fully described hereinafter.

In the accompanying drawings:

Figure 1 is a longitudinal sectional view of my improved jig;

Fig. 2 is a plan view;

Fig. 3 is a sectional view on the line 3—3, Fig. 1;

Fig. 4 is an end view; and

Fig. 5 is a detached perspective view of the screen.

1 is a frame. 2 is a tank divided by a vertical partition 3 forming a plunger chamber 4 and a separating chamber 5. In the plunger chamber is a plunger 6 connected by a rod 7 to an eccentric 8 on a shaft 9 driven by any suitable means. 10 is a screen arranged at a slight angle forming a partition between the lower portion of the tank 2 and the separating chamber and as the plunger is reciprocated the water contained in the tank is forced up through the perforations in the screen carrying with it the particles of coal, while the heavier particles of rock, slate, sand, &c., settle at the bottom.

11 is an adjustable plate adapted to guides in the side walls of the tank and secured to the upper end of this plate is a screw 12 on which is a handled nut 13. On turning the nut the plate can be raised or lowered to control the amount of coal flowing from the compartment 14 into the separating chamber 5. 15 is a chute, preferably divided into two parts and forming a weir 16 over which the coal and water flow when the plunger is depressed and the level of the water in the separating chamber is raised. At the front end of the separating chamber is a partition 17, which forms a settling chamber 18. This partition 17 terminates at a point above the perforated plate 10 so as to allow the rock, sand, and other foreign matter, to pass under the partition into the settling chamber 18. In the front wall of this chamber is a discharge opening 20 controlled by a gate 21 connected by a rod 22 to a pivoted operating lever 23 so that, on raising the gate, the rock, and other foreign matter, will flow from the settling chamber into any suitable receptacle or conveyer.

It will be noticed that the bottom 26 of the settling chamber is lower than the perforated floor of the separating chamber. The floor 27 is inclined from the side of the structure so that the tendency of the rock, and other foreign matter, is to flow toward the center outlet 20. The water and coal passing through the chute 15 are discharged into an inclined chute 28, Fig. 4, and the coal is discharged onto a conveyer, or any suitable receptacle. The water may be collected and returned to the jig when it is necessary to use the water over and over again.

It will be understood that screens having perforations or meshes of different sizes are used for coal of various sizes so that if barley coal, which is exceedingly fine, is being jigged, the perforations are of such a size as to allow anything below the size of barley to pass through the perforations and into the tank 2. The fine particles of dust and other material can be discharged through a pipe 24, which is provided with a valve 25, while the particles of coal larger than the openings in the screen will be carried upward by the water and discharged through the chute 15. The sand, slate, and other foreign matter, will settle on the perforated plate and will gradually flow under the partition 17 into the settling chamber 18 from which they can be drawn when the foreign matter in the settling chamber accumulates sufficiently.

It will be seen, by the above invention, that I am enabled to separate a given grade of coal from the foreign matter and to provide means for discharging the foreign matter from the jig without loss of coal to any great extent, as the partition 17 will hold the coal back, allowing the foreign matter to escape, thus increasing the capacity of the jig and saving a large percentage of the coal which heretofore went to waste, or which had to be rescreened or rejigged.

By providing the settling chamber at the point indicated, when the gate valve is

opened, the material in the upper portion of the separating chamber is not disturbed as would be the case where the partition is not used, as the body of water which would necessarily flow from the separating chamber through the passage 20 would carry with it not only the foreign matter, but also a large quantity of coal.

I preferably allow the valve 25, at the bottom of the tank, to remain open to a certain extent so that the fine particles of material will flow away from the tank.

I claim:

The combination in a jig, of a plunger chamber; a separating chamber; a reciprocating plunger in the plunger chamber; an inclined perforated plate forming the bottom of the separating chamber; a settling chamber at the forward end of said plate, the bottom of said settling chamber being formed into a plurality of oppositely inclined faces adapted to direct the material in said chamber toward a common outlet therebetween; a valve controlling said outlet; a vertical partition between the separating and settling chambers, said partition having its lower end disposed above the perforated plate thereby forming a passage between the said chambers; an outlet for the water and lighter materials above the settling chamber; and an adjustable plate in the rear of the separating chamber, said plate forming a receiving chamber and being vertically adjustble to vary the passage from the said receiving chamber to the separating chamber.

In witness whereof I affix my signature.

CHARLES V. KING.