

(No Model.)

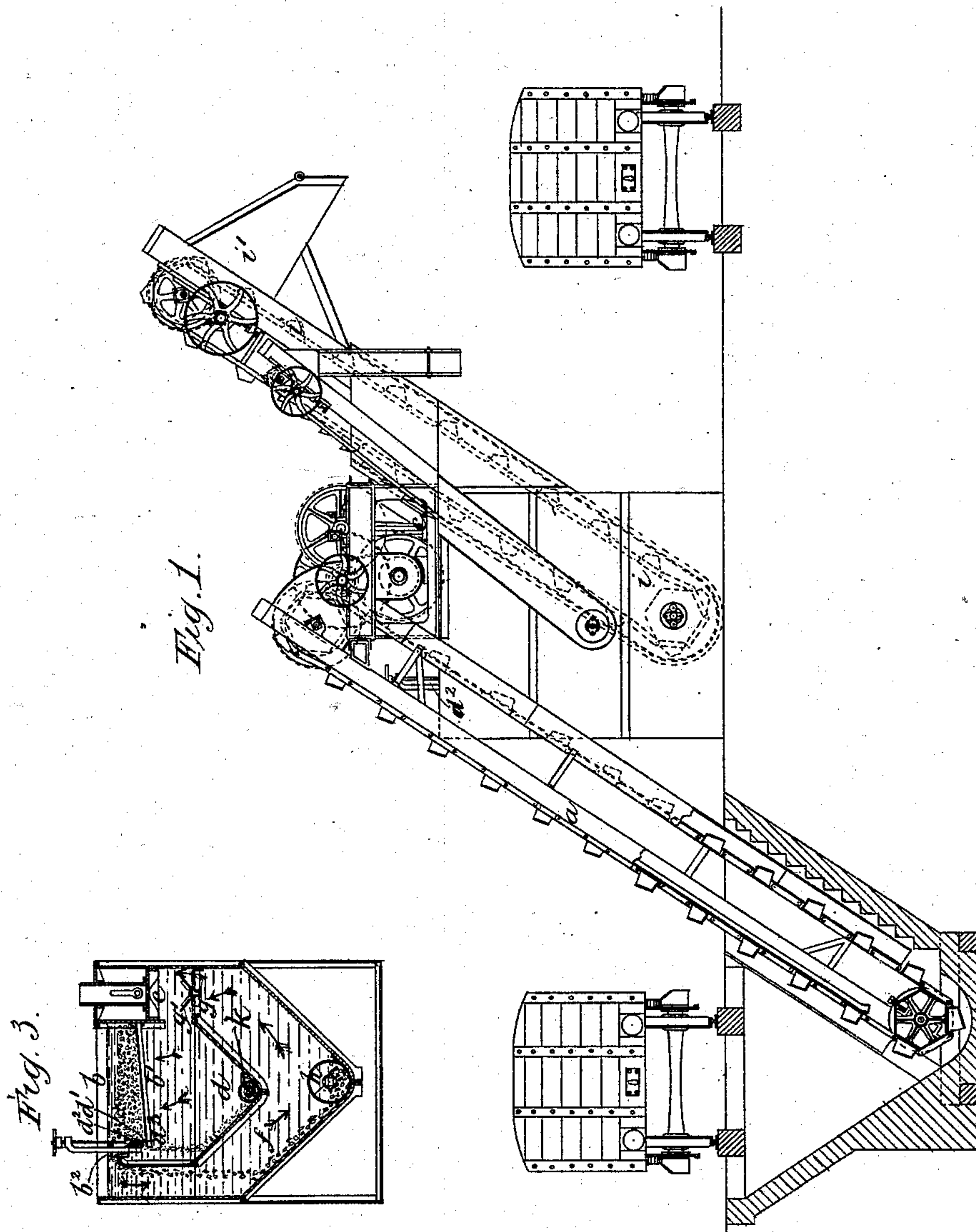
2 Sheets—Sheet 1.

C. SHEPPARD.

APPARATUS FOR WASHING AND DELIVERING COAL, &c.

No. 283,156.

Patented Aug. 14, 1883.



Witnesses.

C. J. Williamson
W. T. Hutchinson

Inventor.
Charles Sheppard,
by John J. Halsted & Son
his Attys.

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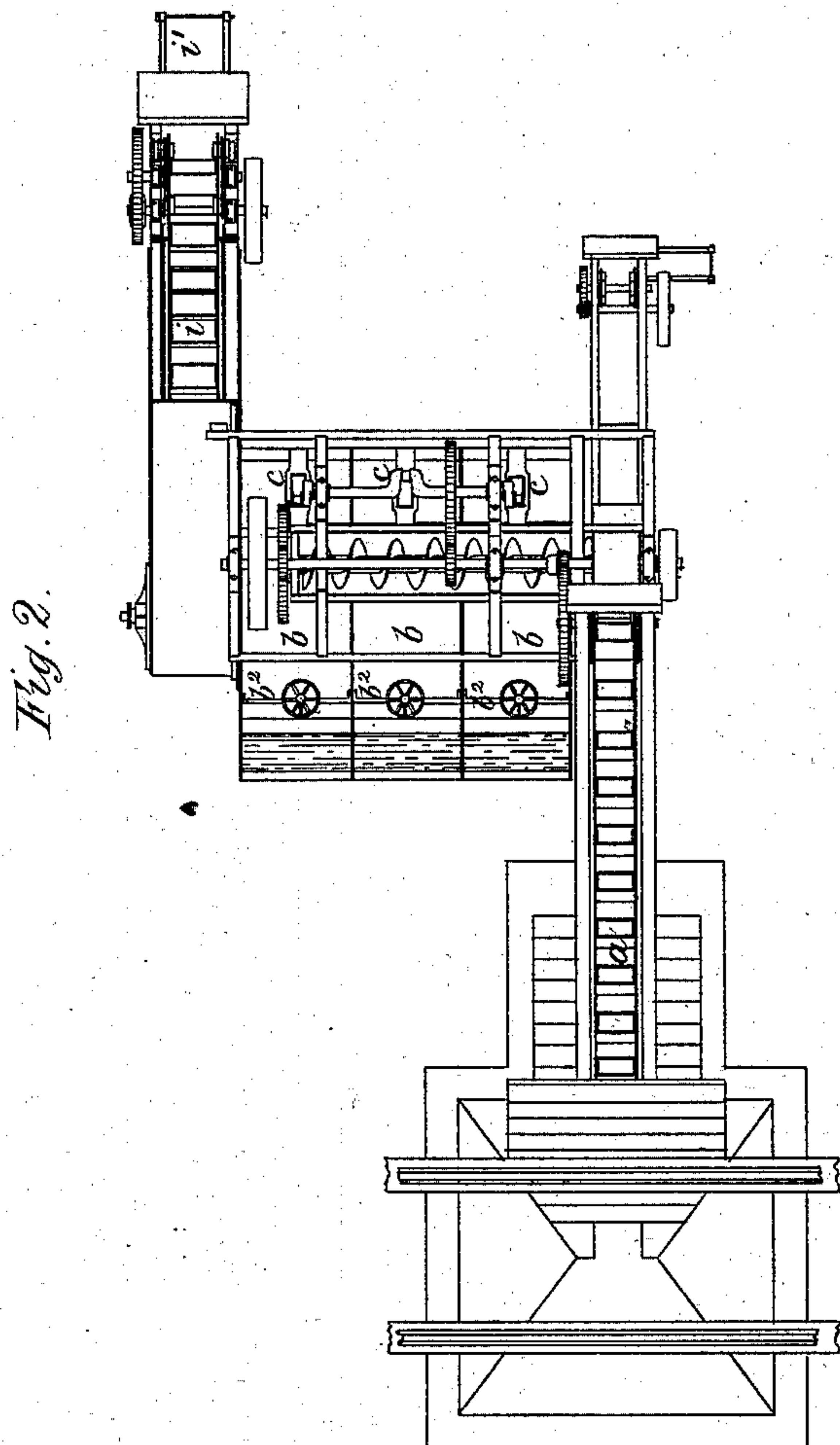
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UNITED STATES PATENT OFFICE.

CHARLES SHEPPARD, OF BRIDGEND, COUNTY OF GLAMORGAN, ENGLAND.

APPARATUS FOR WASHING AND DELIVERING COAL, &c.

SPECIFICATION forming part of Letters Patent No. 283,156, dated August 14, 1883.

Application filed June 2, 1882. (No model.) Patented in England March 21, 1876, No. 1,200, and in Canada June 10, 1882, No. 14,939.

To all whom it may concern:

Be it known that I, CHARLES SHEPPARD, a subject of the Queen of Great Britain, residing at Bridgend, in the county of Glamorgan, Wales, have invented new and useful Improvements in Apparatus for Washing and Delivering Coal, Ashes, and other Substances, (for which I have obtained a patent in England, No. 1,200, dated March 21, 1876, sealed September 9, 1876,) of which the following is a specification.

The object of my present invention is to facilitate the washing and purifying of the coal or other matter to be operated upon.

The coal or other matter to be operated upon is, when necessary, reduced to suitable size by crushing. It is then fed, by elevators or other suitable feed means, into separate compartments, called "bashes," or other suitable receivers, of which there may be one, two, three, or other number. Each of these bashes or receivers is provided with a perforated copper floor near its upper part, on which the matters to be washed are received, and these floors incline toward the end opposite where the coal is fed in. These bashes or receivers are supplied with water to a level above that of the matters on the perforated copper floor, and this water is circulated by pump apparatus or other suitable means, producing an intermittent upward current through the perforated copper floor and the matters resting thereon, whereby the shale, stone, or other heavy particles sink to the bottom, and the coal, coke, ashes, breeze, or lighter particles flow over with the water to the settling-chamber. The shale or other refuse separated from the coal, coke, ashes, or breeze passes into the rubbish-chamber by an opening. The extent of admission at this opening is capable of being regulated by adjustable sluices or valves, and the matters so received are carried forward in a trough or gutter at the bottom by a revolving screw and then delivered at one end of it into a suitable receiver, and from thence elevated. The coal or other matter, as cleansed, flows with the current of water from the bashes or receivers into a settling-chamber, the bottom of which is formed to receive a screw-conductor, by which the settled matters are con-

ducted forward to an elevator, by which they are raised, and, aided by suitable chute or chutes, delivered into wagons or other receivers. The matters raised are drained as raised by the buckets or lifters, being perforated, allowing the escape of the water therefrom and flow back to the machine. Valves are formed in the settling-chamber for the passage of the water from the settling-chamber again to the circulating-pump or agitator. By these means the coal or other matter is washed, purified, and delivered in a semi-dry state without the use of separate settling-ponds, and without the necessity for raising the water again to the machine, and without discharging foul water during the washing process.

That the invention may be more fully understood, I will, by the aid of the accompanying drawings, proceed to describe means pursued by me in carrying the same into effect.

In the drawings, Figure 1 shows by side view, and Fig. 2 by plan view, parts of apparatus arranged according to my invention. Fig. 3 represents separately a sectional view of some of the parts.

In each of the figures the same letters indicate corresponding parts.

a represents the elevator to raise the coal to be washed, and which may then, by means of a screw-conveyer, (shown in Fig. 2,) be delivered to the perforated floors *b'* of three or other suitable number of compartments or bashes, *b*. The matters thus received onto these floors *b'* are cleansed by the action of the pumps *c*, one to each compartment, the action of the pistons of these pumps being to cause an upward current of the water through the perforated bottoms *b'* on the under side of the matters supported by them. These floors also incline toward the end *d'*, which has openings *d'* from each of the compartments *b*, capable of adjustment by slides *d''*. The action of the water on the matters on the perforated floors *b'* is to cause the separation of the lighter from the heavier portions, so that in the case of coal, coke, &c., while shale or stone sinks to the bottom and thence passes into the rubbish-chamber *d*, to be carried forward by the screw *k* therein, and then to be delivered as desired, the coal, coke, breeze, or lighter particles float

over the upper edge, b^2 , of the chamber b , by which, according to my present improvements, it is conducted down to the lower part of the settling-chamber f , which is divided from the chambers b , under the respective perforated floors b' , by the partition g ; and this partition g is provided with passages of communication g' through it, capable of regulation, so that the water may freely flow from one chamber to the other, and this water is maintained at a height sufficient to cover the particles in their passage over the top of the edge b^2 . The matters, as collected in this settling-chamber f , are conducted forward by a screw, h , or other suitable means, and are thence elevated by a series of elevators, i , or by other suitable elevators, and, aided by chute i' , delivered into wagons or other receivers. The matters raised are drained as raised by the buckets or lifters being per-

forated or formed of open-work to allow of the draining of the water therefrom and returning to the machine.

Having thus described my invention, and means which I adopt in carrying the same into effect, I would have it understood that what I claim, is—

The described apparatus for washing and delivering coal and other substances, consisting of an elevator, a , compartments b , provided with inclined perforated floors b' , and having openings d' , the slides d^2 , pumps c , rubbish-chamber d , settling-chamber f , valves g' , conducting-screws, and the elevators i , substantially as set forth.

CHARLES SHEPPARD.

Witnesses:

JOHN LEWIS BRIGHT,
VALENTINE CLARK LLOYD.