No. 641,227. Patented Jan. 9, 1900.

J. F. REINERT.

AUTOMATIC SAND AND WATER SEPARATOR AND SAND WASHER.

(Application filed Sept. 2, 1899.)

(No Model.)

Fig. 1.

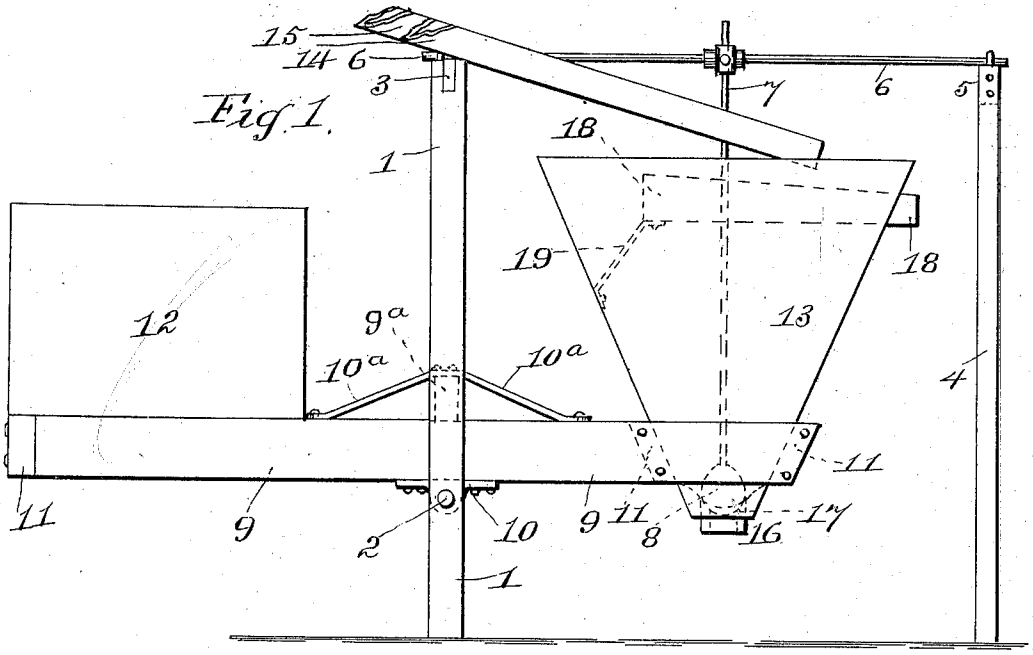


Fig. 2.

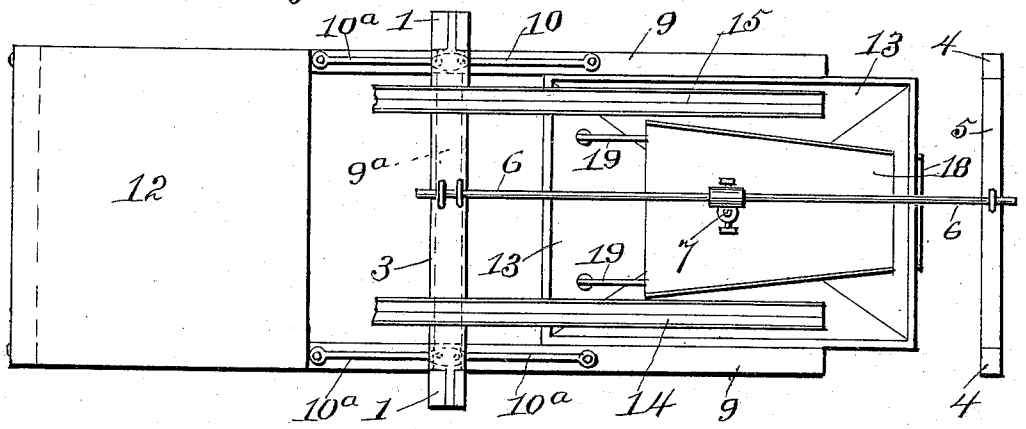
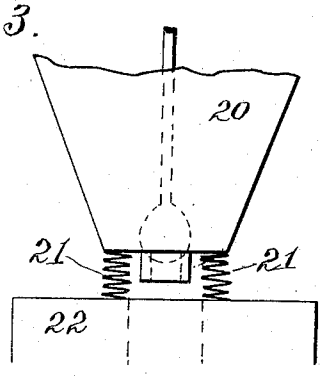


Fig. 3.



Witnesses.

Inventor.

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By

Attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN F. REINERT, OF ELGIN, ILLINOIS.

AUTOMATIC SAND AND WATER SEPARATOR AND SAND-WASHER.

SPECIFICATION forming part of Letters Patent No. 641,227, dated January 9, 1900.

Application filed September 2, 1899. Serial No. 729,348. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. REINERT, a citizen of the United States, residing at South Elgin, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Automatic Sand and Water Separators and Sand-Washers, of which the following is a specification.

This invention relates to separators, and particularly to a balanced water and sand separator automatically operated to wash the sand and discharge the latter and the water separately.

The object of the invention is to provide a tank having a valve-controlled sand-discharge adapted to be operated by gravity and a water pan or receptacle secured in the tank and adapted to discharge water from the tank separate from the sand.

Other objects, advantages, and improved results accruing from the special construction and arrangement of parts will be found in the practical application of the machine.

In the accompanying drawings, forming part of this application, Figure 1 is a side elevation of my complete machine. Fig. 2 is a top view. Fig. 3 is an elevation of a modification, partly broken away.

The same numeral references denote the same parts in the views of the drawings.

The uprights 1 have a cross-shaft 2 extending through them, and they are joined at the top by a cross-beam 3. Other upright beams 4 are positioned at a proper distance from the uprights 1 and have a connecting cross-beam 5. The cross-beams 3 and 5 support a horizontal bar 6, to which is adjustably secured a depending rod 7, having a valve 8.

Horizontal side beams 9 have boxes 10, in which the ends of the shaft 2 are journaled, so that the beams 9 are free to swing or oscillate vertically on the ends of the said shaft. The beams 9 are joined at their ends by pieces 11, and one end portion of the beams 9 carries a weight, which, for example, comprises a box 12, containing sufficient sand, stone, or other suitable weight to overcome the weight of sand and water contained in a tank 13 upon the other end of the beams 9 until the amount of sand and water in the tank overcomes the weighted end of the said beams. A truss composed of the beam 9^a and rods 10^a strengthens the beams 9.

The tank 13 has a large top opening or mouth, which receives the sand and water from suitable inclined troughs 14 and 15, and terminates in a contracted bottom 16, having a valve-seat 17 for the valve 8 and a sand-discharge opening from said seat, said lower end of the tank being secured to the beams 9 and to two of the cross-pieces 11, with the contracted bottom 16 depending below the beams 9. A water receptacle or pan 18 is located in the tank and has its mouth end secured to the tank by bars 19, and its contracted discharge end projects through the wall of the tank to carry off the water from the sand in the tank when the latter becomes full. The spout or receptacle thus projecting over nearly the whole surface of the tank near the top receives and discharges the overflowing water as fast as it rises during the filling of the tank, so that as soon as the tank is practically filled with the sand and other solid matters and sinks under the weight thereof and opens the valve practically all the water has been discharged separately from the solid matters escaping from the tank, which is not possible with an ordinary spout or water-discharge opening in the tank.

Referring to the modification shown in Fig. 2, a tank 20 is supported by spiral springs 21 from a suitable support 22 instead of being balanced.

The operation of the machine is as follows: Water and sand are fed into the tank until the latter overbalances the weight 12, whereupon the tank will fall, releasing the valve-seat from its valve, permitting the sand to discharge through the bottom of the tank, while the water during this operation is discharged from the tank through the pan 18. It is obvious that the weighted end of the beams 9 will return the tank to normal position after said operation.

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

1. The combination, with the balanced tank having a separate sand and water discharge, of the water-receptacle secured in and to the tank to hold the water from the sand as it

rises in the tank, and connected to the water-discharge, and a fixed or stationary valve to open and close the sand-discharge by the balanced movement of the tank.

2. In an automatic sand and water separator and sand-washer, the combination, with the uprights, the cross-shaft, the horizontal beams having a weight on one end and pivoted or journaled centrally on the shaft to swing vertically, the horizontal bar secured to the uprights, and the rod depending from the said bar and having a stationary valve, of the tank carried by the other end of said beams and having a sand-discharge independent of the water-discharge, the water-receptacle suspended in and over the upper portion of the tank to hold the water separate from the sand and discharge it through the side of the tank, and a valve-seat in the sand-discharge which is opened and closed with said valve by the sand in the tank overbalancing said beam-weight.

In witness whereof I hereunto set my hand in the presence of two witnesses.

JOHN F. REINERT.

Witnesses:

EUGENE G. HAMMOND,

EDWARD D. HAMMOND.