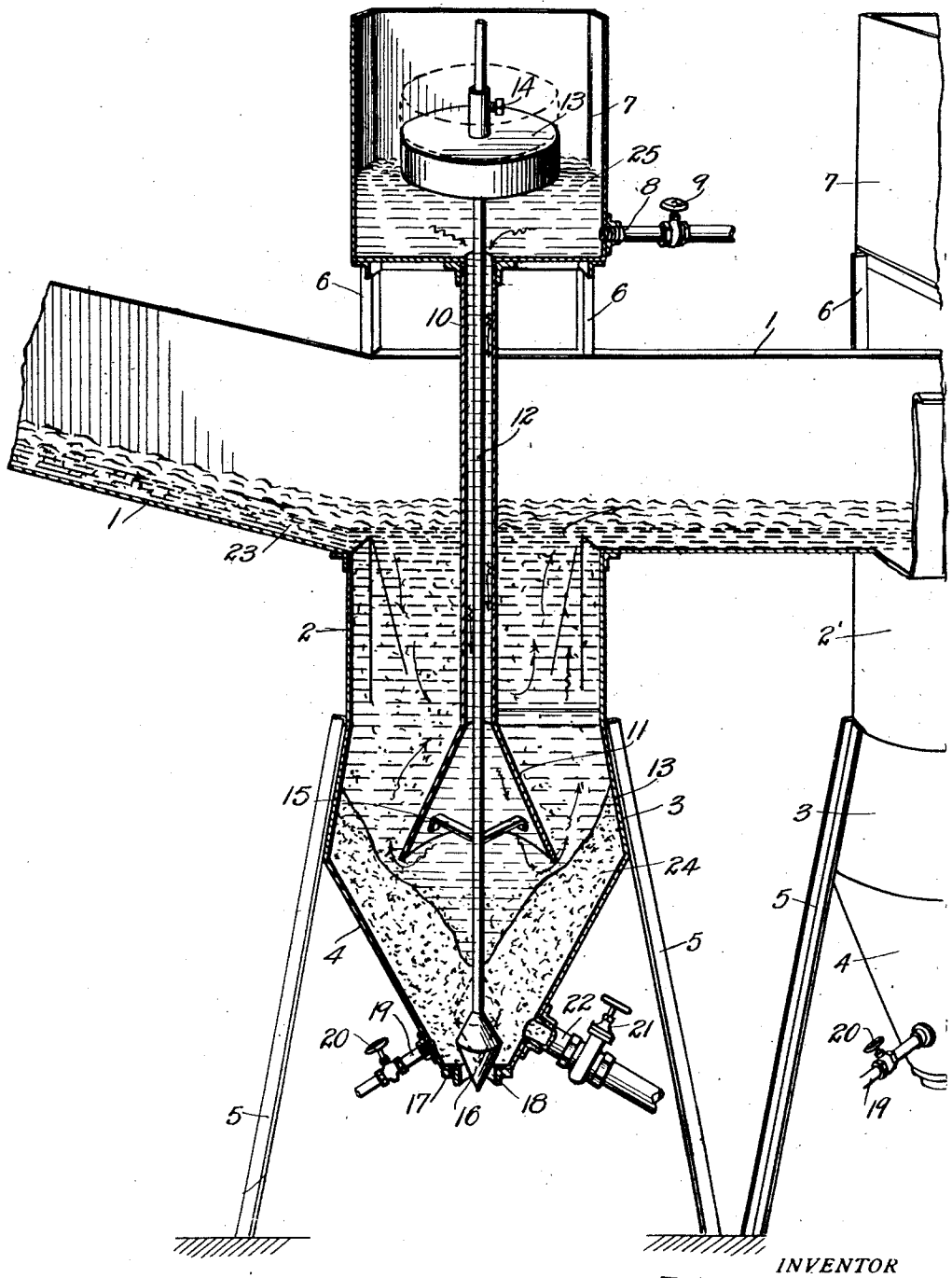
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SAND CLEANING AND CLASSIFYING DEVICE

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SAND CLEANING AND CLASSIFYING DEVICE.

Application filed May 20, 1926. Serial No. 110,403.

My invention relates to a sand de-watering and cleaning device and particularly to such a device that is also adapted to classify or grade the sand.

It is a purpose of my invention to provide a sand cleaning device having a sand cleaning chamber that is provided with means for supplying water thereto and which has an outlet for the sand near the bottom thereof, the chamber being provided with means for controlling the discharge of the cleaned sand through said outlet which is operated automatically to assume different positions as the level of the sand in the cleaning chamber varies. The arrangement is preferably such that the clean water is supplied from a float chamber, located above the cleaning chamber, in which a float is located that controls the position of a valve at the outlet from the cleaning chamber through which the cleaned sand passes.

The water supply pipe is preferably flared at the bottom thereof and thus restricts the space between the walls of the cleaning chamber and the water supply pipe, whereby when the sand reaches such a level that it fills in between the pipe and the wall of the cleaning chamber adjoining the pipe, the normal flow of the water upwardly out of the cleaning chamber is decreased, thus causing the float chamber to fill, due to the fact that a constant supply of water is passing into the same, whereupon the float rises and the valve controlling the discharge of the sand is raised, causing the sand to be discharged from the bottom of the cleaning chamber.

It is another object of the invention to provide a plurality of such cleaning chambers wherein one chamber discharges the overflow from itself into a second chamber, and in view of the fact that the smaller particles will flow along with the water while the larger particles will settle to the bottom, this results in a grading or classifying of the sand so that the coarser sand will collect in the first of said chambers at the bottom thereof and the finer sand in the second chamber. Obviously the number of chambers to be used may be varied in accordance with the number of grades desired.

Other objects and advantages of the invention will appear as the description of the drawing proceeds. However, I desire to have it distinctly understood that I do not intend to limit myself to the exact details shown or described, but that I intend to include as part of my invention all such obvious changes and modifications of parts as would occur to a person skilled in the art and as would fall within the scope of the claim.

In the drawing, the figure is a view partly in section and partly in perspective of my improved sand cleaning and classifying apparatus.

Referring in detail to the drawings:

A conduit 1 is shown, to which is secured a cleaning chamber 2 having an outwardly flared wall portion 3 and an inwardly tapered wall portion 4 forming a conical bottom for the chamber. The chamber is supported upon any suitable supporting means such as the legs 5, and the conduit 1 is supported from the chamber 2. Mounted upon the top of the conduit 1 and supported by means of the legs 6 is a float chamber 7. A water supply pipe 8, having a valve 9, leads into said chamber 7 near the bottom thereof and a pipe 10 leads from the bottom of the chamber 7 into the cleaning chamber 2, said pipe having a flaring or conical lower end portion 11 which is open at the bottom thereof.

Mounted within the pipe 10 is a valve rod 12 on the upper end of which is mounted a float member 13, the same being adjustably secured in position on the rod 12 by means of the set screw 14. A guide bracket 15 is provided in the flaring part 11 of the pipe 10 for the rod 12 and a valve member 16 is mounted on the extreme lower end of the rod 12. The bottom 17 of the chamber 2 is provided with an opening 18 into which the valve 16 may seat so as to close the same. A water pipe 19 having a valve 20 is also provided, leading into the chamber 2 near the bottom thereof, whereby the chamber may be washed when this is desired, the flushing operation being accomplished by opening the valve 21 in the flush pipe 22 through which the water and contents of the chamber 2 may be discharged when desired.

Ordinarily the water flowing through the pipe 8 will pass into the float chamber 7 and down through the pipe 10 into the conical portion 4 of the chamber 2, mixing with the sand and water indicated by the numeral 23, flowing in through the conduit 1 from the left of the chamber 2, and passing downwardly toward the conical bottom of said chamber. Thus the clean water passing

downwardly through the pipe 10 will tend to wash any mud or other undesirable matter out of the sand. At the same time the particles of sand, particularly the coarser particles, will collect in the conical bottom 4 of the chamber 2 and will finally build up to the position shown in the drawing, the sand being indicated by the numeral 24. When this occurs, the space between the flaring mouth 11 of the pipe 10 and the side wall portion 3 of the chamber 2 will be reduced and the flow of the water will be impeded, causing the level of the water, indicated by the numeral 25, in the tank 7 to rise, lifting the float 13 to the dotted position shown in the drawing, and raising the valve off its seat to the dotted position shown therein, whereupon the sand 24 will discharge more rapidly through the opening 18.

After enough of the sand has discharged to increase the space between the flaring portion 11 of the pipe 10 and the wall portion 3, the water will resume its original flow, and the float 13 will go down, decreasing the discharge through the opening 18. The water with the particles of sand remaining therein passes upwardly through the upper portion of the chamber 2 and flows through the conduit 1 to the right of said chamber 2 shown in the drawing, to the cleaning chamber 2′ which is substantially the same in construction as the chamber 2. A certain quantity of the sand will collect in the bottom of the chamber 2′ in substantially the same manner as described in connection with the chamber 2.

Ordinarily the valve 16 is open and sand flows out through the opening 18, the amount flowing out depending upon the position of the valve 16, thus regulating the amount of sand accumulating in the conical portion 4 of the chamber 2. As a result the discharge of sand from the opening 18 is in proportion to the amount entering the chamber 2 with the water through the conduit 1. The only time the valve 16 closes the opening completely is when the sand carrying water ceases to flow, or has a very small proportion of sand therein.

The number of cleaning chambers may be increased if desired to catch still finer particles of the sand, although this may sometimes not be necessary and is dependent upon the amount of grading of sand that it is desired to do.

It will be obvious that the sand collected in the bottom of the chamber 2 will be coarser than that collected in the bottom of the chamber 2′, and so on.

What I claim and desire to secure by Letters Patent is:—

In a device of the character described, a receptacle for material to be cleaned, having a lower valved outlet and an upper overflow outlet, a cleaning fluid tank having a supply intake, a conduit leading from the tank into the receptacle and having a flared terminus above the valved outlet co-operative with material accumulated in the receptacle to variably restrict flow from said conduit to the overflow outlet, a float in said tank, a valve for the valved outlet, and a rod extending through said conduit and connecting the float and the valve, whereby operation of the valve is effected by variation of level in the tank.

In testimony whereof I affix my signature.

EDMUND SHAW.