March 30, 1937. L. H. KESSLER 2,075,207

SAND DEWATERING APPARATUS

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Fig. 1.

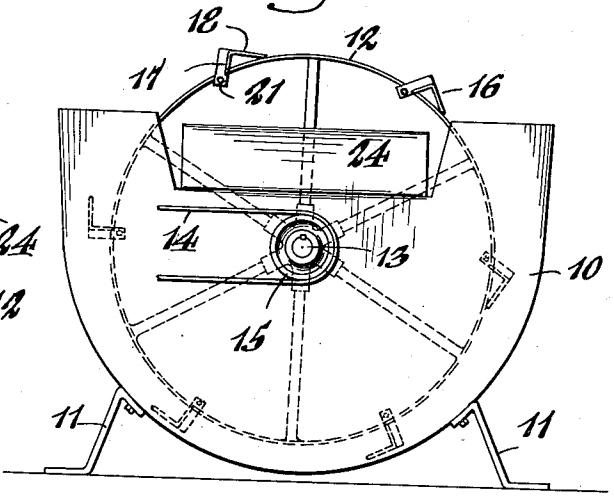


Fig. 6.

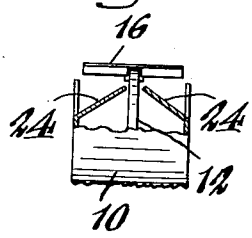
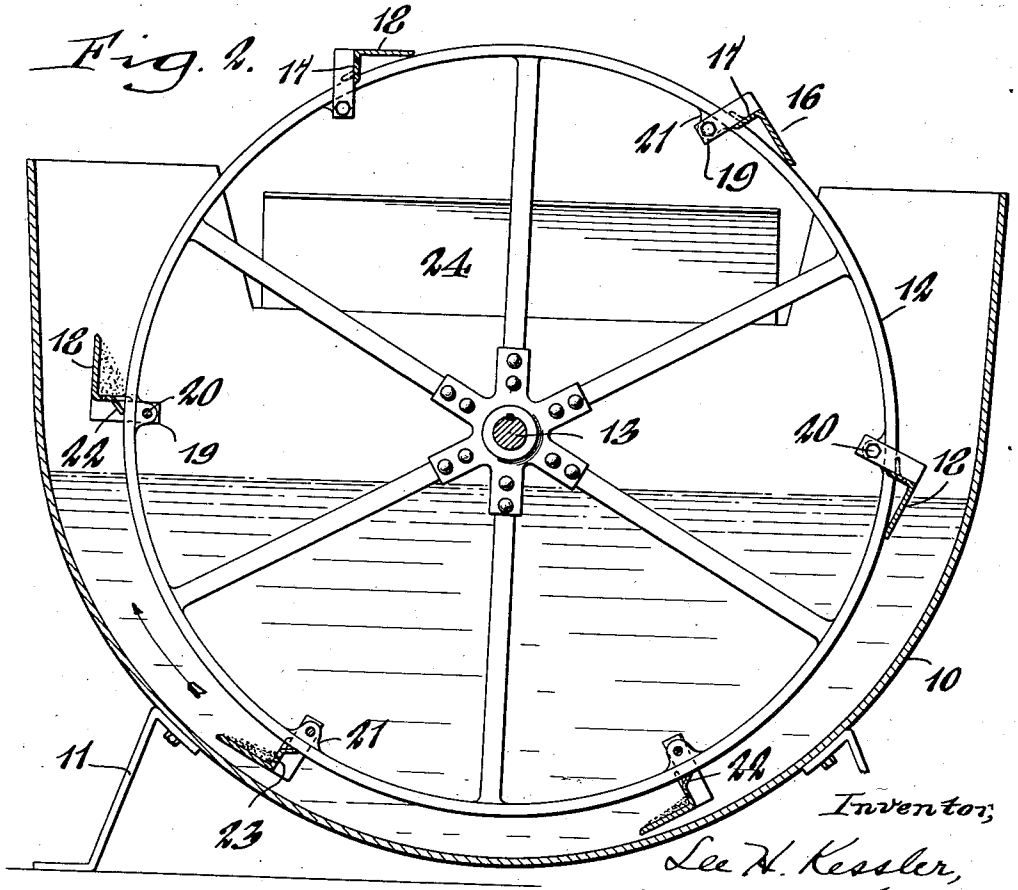


Fig. 2.



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Fig. 3.

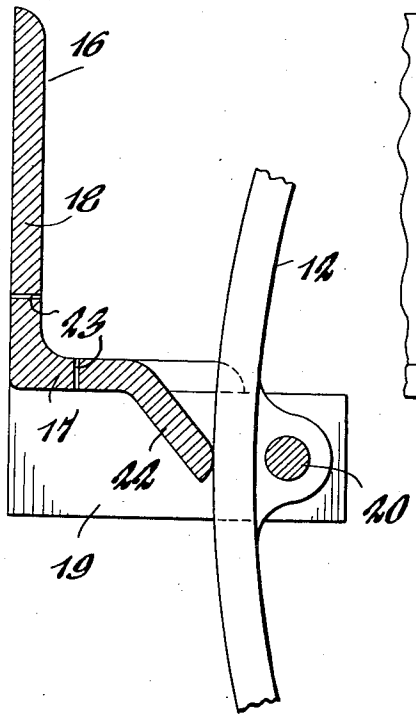


Fig. 4.

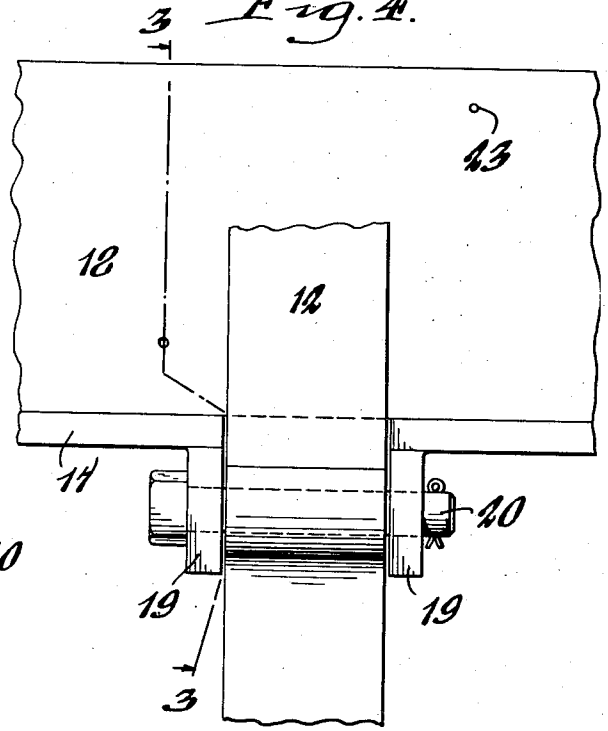
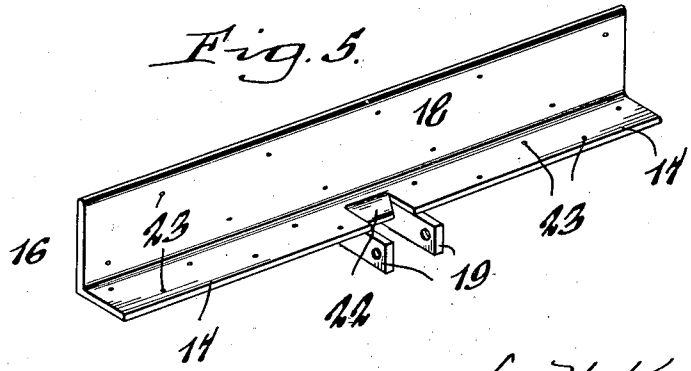


Fig. 5.



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UNITED STATES PATENT OFFICE

2,075,207

SAND DEWATERING APPARATUS

Lee H. Kessler, Springville, N. Y.

Application June 20, 1933, Serial No. 676,690

1 Claim. (Cl. 209—464)

This invention relates generally to certain new and useful improvements in sand treating apparatus, but more particularly to an apparatus for dewatering and washing sand.

One of its objects is the provision of a dewatering apparatus for sand and like materials which is efficient, positive and reliable in operation, and which is designed to operate at a maximum capacity with a minimum expenditure of power.

Another object of the invention is to provide an apparatus for effectively separating the sand from the water which is simple, compact, rugged and inexpensive in construction, and which is not liable to get out of order.

In the accompanying drawings:—

Figure 1 is a side elevation of an apparatus embodying my invention. Figure 2 is an enlarged vertical section thereof. Figure 3 is a cross-section taken substantially in the plane of line 3—3, Figure 4. Figure 4 is a fragmentary inside face view of one of the sand-receiving shelves and associated parts. Figure 5 is a perspective view of one of the sand-receiving shelves. Figure 6 is a sectional end view of the apparatus.

Similar characters of reference indicate corresponding parts throughout the several views.

Referring now to the drawings, 10 indicates a trough or tank for the sand and water which is substantially cylindrical in shape, open at its top, and suitably supported on legs 11. Operatively arranged within this tank is a revolvable sand-separating wheel 12 which extends part way into the sand and water and which is mounted on a transverse shaft 13 journaled in the side walls of the tank and driven at a slow speed from a suitable source of power by a belt 14 and pulley 15.

Carried by the wheel 12 to revolve therewith are a plurality of sand-receiving members indicated generally by the numeral 16 which are adapted to dip into and remove the sand from the tank and then empty the contents to a suitable point of discharge, the water in the sand being drained therefrom before the sand is allowed to be discharged from the receiving members. These sand-receiving members are located at suitable radial points about the wheel and each preferably consists of a tray or shelf extending transversely of the wheel and pivoted thereto to swing toward and from the peripheral face thereof. Each shelf is, by preference, angle-shaped in cross section and includes a ledge or bottom wall portion 17 disposed in edgewise relation to the wheel-periphery, and a retaining wall portion 18 rising from the outer edge of the ledge and facing the periphery of the wheel, as seen in Figures 2 and 3. These sand-receiving shelves project a suitable distance at opposite sides of the wheel and substantially centrally thereof are provided with lugs or hinge brackets 19 which depend from the ledge portion 17 of each shelf and are pivoted at 20 to a similar lug or hinge member 21 applied to the wheel-rim, whereby the shelves are adapted to swing toward and from the face of the wheel.

For the purpose of preventing or limiting the outward swinging movement of the shelf away from the wheel-periphery, I provide a stop means preferably consisting of a stop lug 22 projecting centrally from the shelf-ledge 17 and downwardly therefrom to abut against the peripheral face of the wheel 12, in the manner shown in Figure 3, and thereby positively limiting the outward displacement of the shelf, particularly when loaded. As shown in Figures 3 and 5, this stop lug may be formed by cutting parallel slits in the shelf-ledge and then bending the resulting tongue downwardly at an angle to the ledge.

As the wheel 12 revolves in the direction of the arrow shown in Figure 3, the lower shelves 16 assume, by gravity, a pendant position with the walls 18 thereof dipping into the sand and water and removing a charge of sand therefrom. As the wheel continues to revolve and the shelves leave the water level in the tank, the water in the sand is free to be drained from the shelf, the water flowing from the ends as well as the inner side of the shelves, and if desired, the ledges 17 and the retaining walls 18 of the respective shelves may be perforated, as indicated at 23, to further effectually drain the water from the sand. As each shelf reaches a position short of a vertical plane passing through the axis of the shaft 13, it is tipped by gravity toward the periphery of the wheel and the de-watered sand is discharged therefrom into a suitable chute 24 which may be applied to the tank, as shown in Figures 1, 2 and 6, there being a chute disposed at each side of the wheel to receive the contents from the corresponding projecting portions of the shelves. The shelf is so hung or balanced and its center of gravity so disposed as to effect the automatic swinging of the shelf to its dumping position when at a radial point in proximity to a vertical plane intersecting the wheel axis, and when so tipped the edge of its retaining wall 18 strikes the peripheral face of the wheel and thereby effectually acts to jar and loosen the sand from the shelf.

By this construction, each sand-receiving shelf 16 is provided with ample wall structure to hold a maximum amount of sand and at the same time allow the water to drain off the moment the shelves are withdrawn from the water, whereby the water is effectually drained from the sand before it is dumped. Furthermore this apparatus is manifestly simple, compact and inexpensive in construction, it is reliable and efficient in operation, and is not liable to get out of order.

I claim as my invention:

An apparatus of the character described, comprising a revolvable wheel, and a two walled sand-receiving shelf disposed transversely and exteriorly of the wheel-periphery and pivoted thereto to swing toward and from the same, both of said walls being disposed at one side of said pivot with one wall disposed radially of the wheel and the other in spaced circumferential relation thereto, and a stop member applied to said shelf in opposing relation to the wheel-periphery for engagement therewith to limit the swinging of the shelf in a direction away from such periphery.

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