

No. 650,569.

Patented May 29, 1900.

H. R. SHAW.

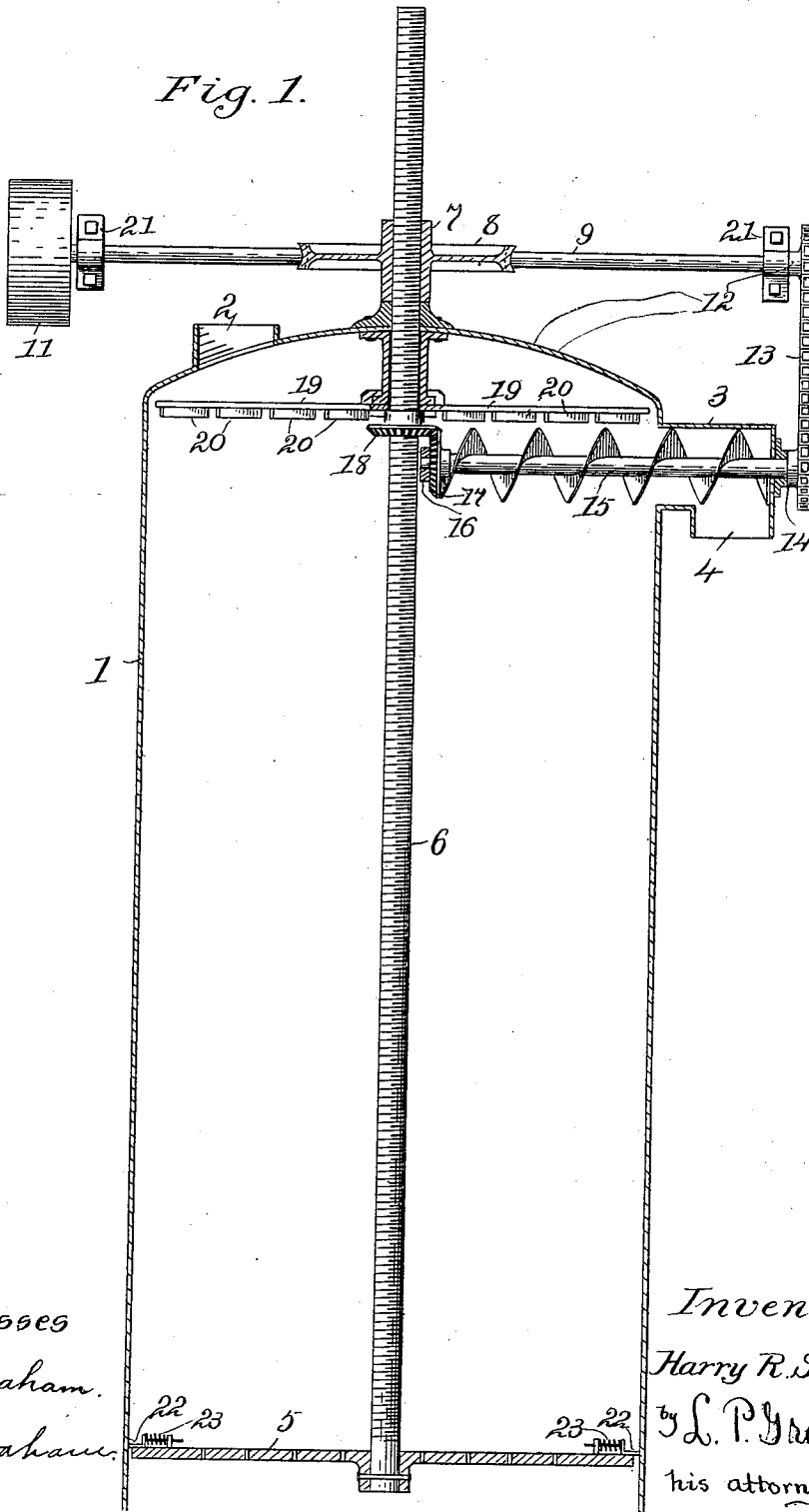
MECHANISM FOR DISCHARGING CONTENTS OF TANKS.

(Application filed Feb. 15, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



Witnesses

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Anna Graham.

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2 Sheets—Sheet 2.

Fig. 2.

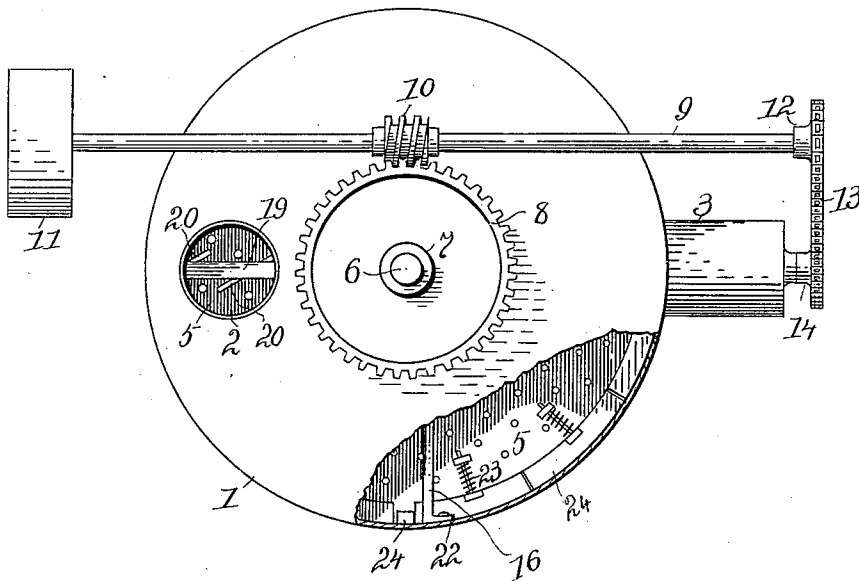
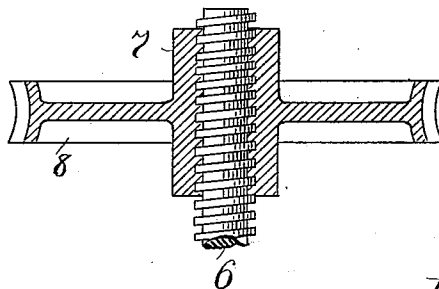


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

HARRY R. SHAW, OF DECATUR, ILLINOIS, ASSIGNOR TO FRANK M. PRATT,
OF SAME PLACE.

MECHANISM FOR DISCHARGING CONTENTS OF TANKS.

SPECIFICATION forming part of Letters Patent No. 650,569, dated May 29, 1900.

Application filed February 15, 1900. Serial No. 5,249. (No model.)

To all whom it may concern:

Be it known that I, HARRY R. SHAW, of the city of Decatur, county of Macon, and State of Illinois, have invented certain new and useful Mechanism for Discharging the Contents of Tanks, of which the following is a specification.

This invention relates to tanks used to temporarily hold material that will not flow readily from the bottom of the tank and that may not be easily removed therethrough—as, for instance, cornmeal which has been treated with a solvent for the purpose of extracting the oil therefrom. It is exemplified in the structure hereinafter described and it is defined in the appended claims.

In the drawings forming part of this specification, Figure 1 is a vertical section through the upper part of a tank embodying my improvements. Fig. 2 is a plan of the tank with a part thereof broken away to expose the internal construction and arrangement. Fig. 3 is a detail of the screw-threaded shaft and the operating-wheel therefor.

The tank 1 has vertical walls, and it is preferably circular in horizontal outline. It has an opening in or near its top, through which it is supplied with the material to be subsequently discharged, and it also has a discharge-outlet in one of its sides, through which the material is withdrawn. The location of a supply-opening is suggested at 2, and a discharge-opening is shown at 4 in a pipe or sidewise extension 3 of the upper end of the tank. A hoistable bottom for the tank is shown at 5, and at 6 is shown the screw-threaded shaft that is preferably employed to hoist the bottom. The shaft or bolt 6 extends through the upper end of the tank. A screw-threaded nut or collar 7 is screwed onto the upper end of the shaft, and its lower end bears against some substantial support, in this instance the top of the tank. A worm-wheel 8 is formed on or attached to the screw-threaded collar 7, and a drive-shaft 9 is provided with a worm 10, which meshes with the worm-wheel. A cross-bar 16 extends nearly diametrically across the tank at right angles with the axis of the pipe-like extension 3, and a screw conveyer 15 is journaled at one end in bar 16 and at the other end in the end wall

of extension 3. A gear-wheel 17 is fixed onto the inner end of the conveyer-shaft, and it meshes with a gear-wheel 18, which turns freely on the screw-shaft 6. An arm or set of arms, in this instance two, are fastened to the gear-wheel 18 and extend radially across the interior of the tank. These arms are designated by the numeral 19, and they are preferably provided on their under sides with oblique ribs or scrapers 20. A pulley 11 on shaft 9 represents means for applying force to such shaft, and boxes 21 are suggestive of the supports used to sustain the shaft. The actual supports for the bearings of shaft 9 may be the framework of the building in which the tank is used or the tank itself, and their provision depends on the conditions under which the tank is operated. A vertical rib or ribs, as 24 in Fig. 2, are fastened to or formed on the inner surface of the tank, and they engage notches in the bottom and prevent it and the screw-shaft from turning with the screw-collar.

To prevent leakage around the edge of the bottom, I have conceived the idea of providing a set of gaskets, of leather or the like, and of holding them against the tank by spring-pressure. The gaskets rest on the upper surface of the bottom plate and collectively form a ring. They are provided with lugs which are opposed to lugs on the bottom plate, and springs 23, interposed between the lugs of the gasket and those of the bottom plate, provide the elastic pressure needed to hold the gaskets yieldingly against the tank. This constitutes what may be termed a "packing-ring" to conform to irregularities in the surface of the tank, and it is a useful but not indispensable provision.

When shaft 9 is turned in a direction to screw collar 7 downward on the shaft 6, the bottom plate is gradually raised and the contents of the tank brought into contact with the screw conveyer. The conveyer is turned by chain 13 taking motion from wheel 12 and transmitting it to wheel 14, or by other suitable gearing, and the material is drawn out through extension 3 and discharged through opening 4. As the material in the tank rises around the conveyer it comes in contact with the revolving arms 19 and is carried by the

scrapers thereon into contact with the conveyer-screw.

I claim—

1. A tank, a hoistable bottom for the tank, means for hoisting the bottom and a withdrawing mechanism extended into the upper end of the tank.
2. A tank, a hoistable bottom for the tank, means for hoisting the bottom and withdrawing mechanism extended horizontally into the upper end of the tank.
3. A tank, a hoistable bottom for the tank, means for hoisting the bottom and a screw conveyer extended horizontally into the upper end of the tank.
4. A cylindrical tank, a hoistable bottom for the tank, means for hoisting the bottom, a screw conveyer extended horizontally into the upper end of the tank and a rotating leveler above the conveyer.
5. A cylindrical tank, a piston-like bottom for the tank, a screw-threaded shaft attached to the bottom, a wheel on the upper end of the shaft the hub of which is internally screw-threaded to conform to the threads of the

shaft, a support for the wheel, a screw conveyer extended horizontally into the upper end of the tank, and a rotating leveler above the conveyer.

6. A cylindrical tank, a piston-like bottom for the tank, a screw-threaded shaft attached to the bottom, a worm-wheel on the upper end of the shaft the hub of which is internally screw-threaded to conform to the threads of the shaft, a support for the worm-wheel, a worm in mesh with the worm-wheel, a screw conveyer extending into the upper end of the tank to near the screw-threaded shaft, a gear-wheel fastened onto the inner end of the conveyer, a gear-wheel mounted loosely on the screw-threaded shaft above and in mesh with the gear-wheel on the conveyer and leveler-arms connected with the gear-wheel on the screw-threaded shaft.

In testimony whereof I sign my name in the presence of two subscribing witnesses.

HARRY R. SHAW.

Witnesses:

NEWTON DAVIS,
CLEM EIRSMAN.