

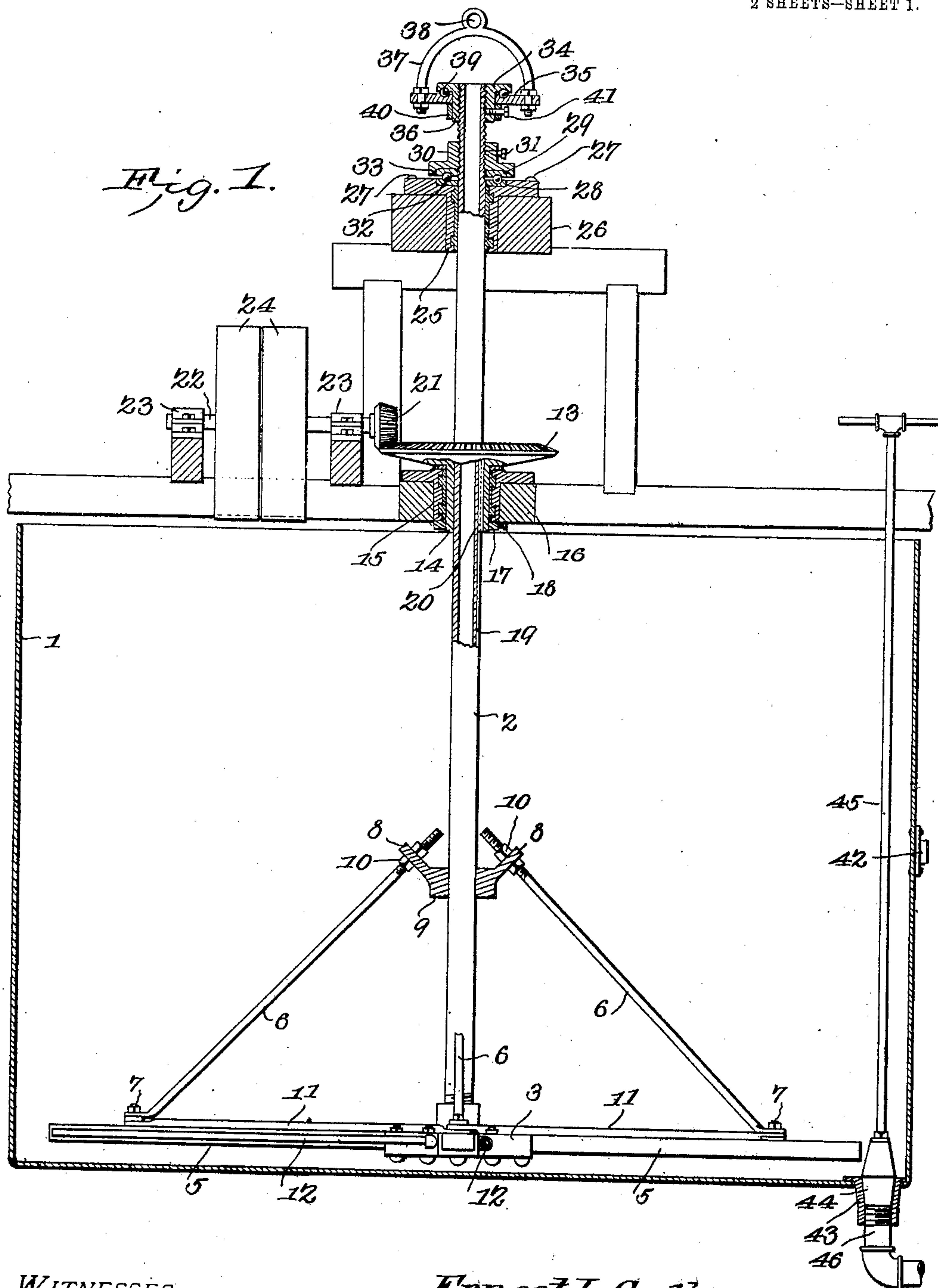
No. 832,252.

PATENTED OCT. 2, 1906.

E. L. GODBE.
COMBINED AGITATING AND LEACHING TANK.

APPLICATION FILED DEC. 5, 1905.

2 SHEETS—SHEET 1.



WITNESSES:
E. J. Stewart
R. M. Elliott

Ernest L. Godbe, INVENTOR,
By *C. A. Snow & Co.*
ATTORNEYS.

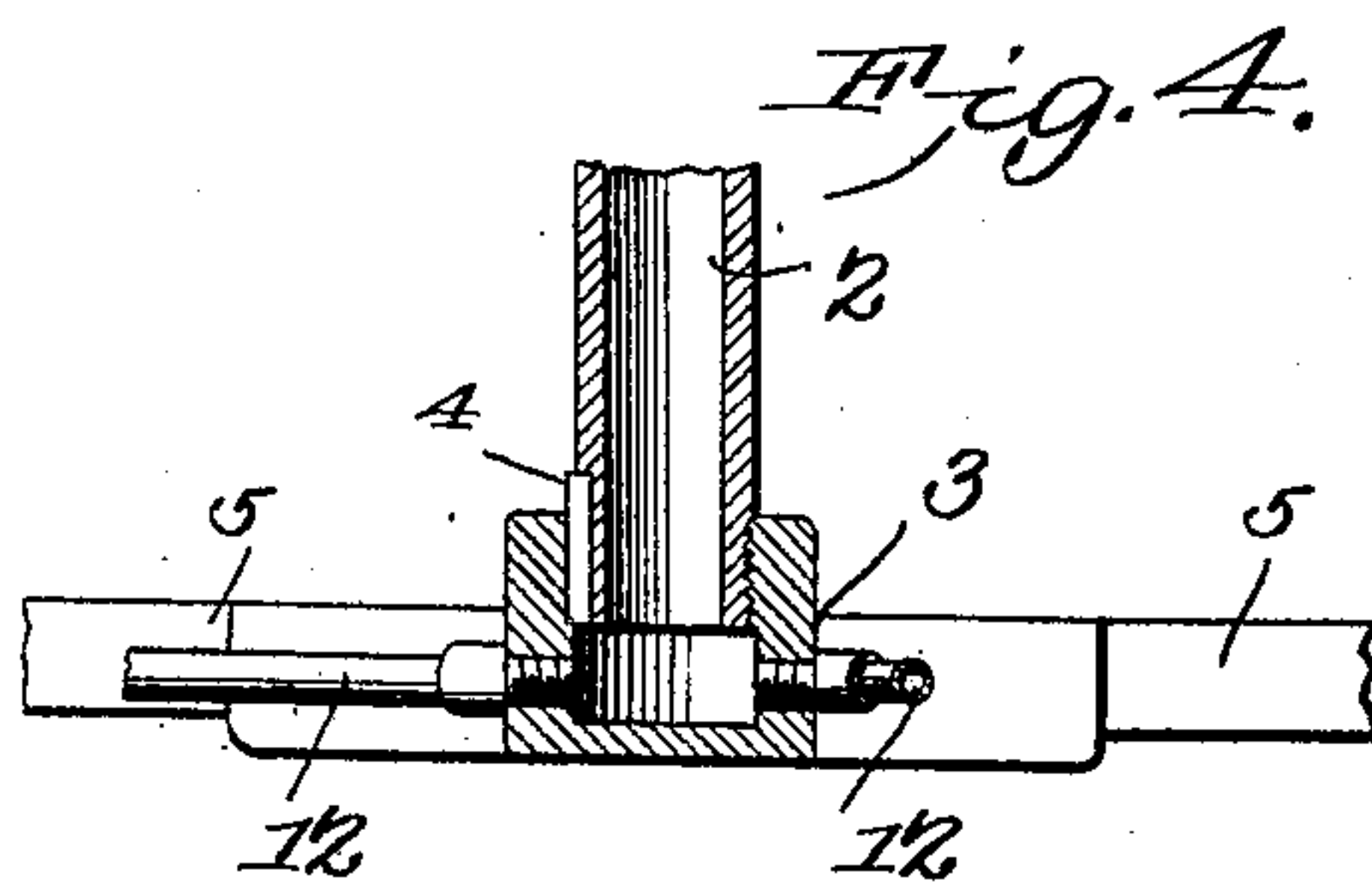
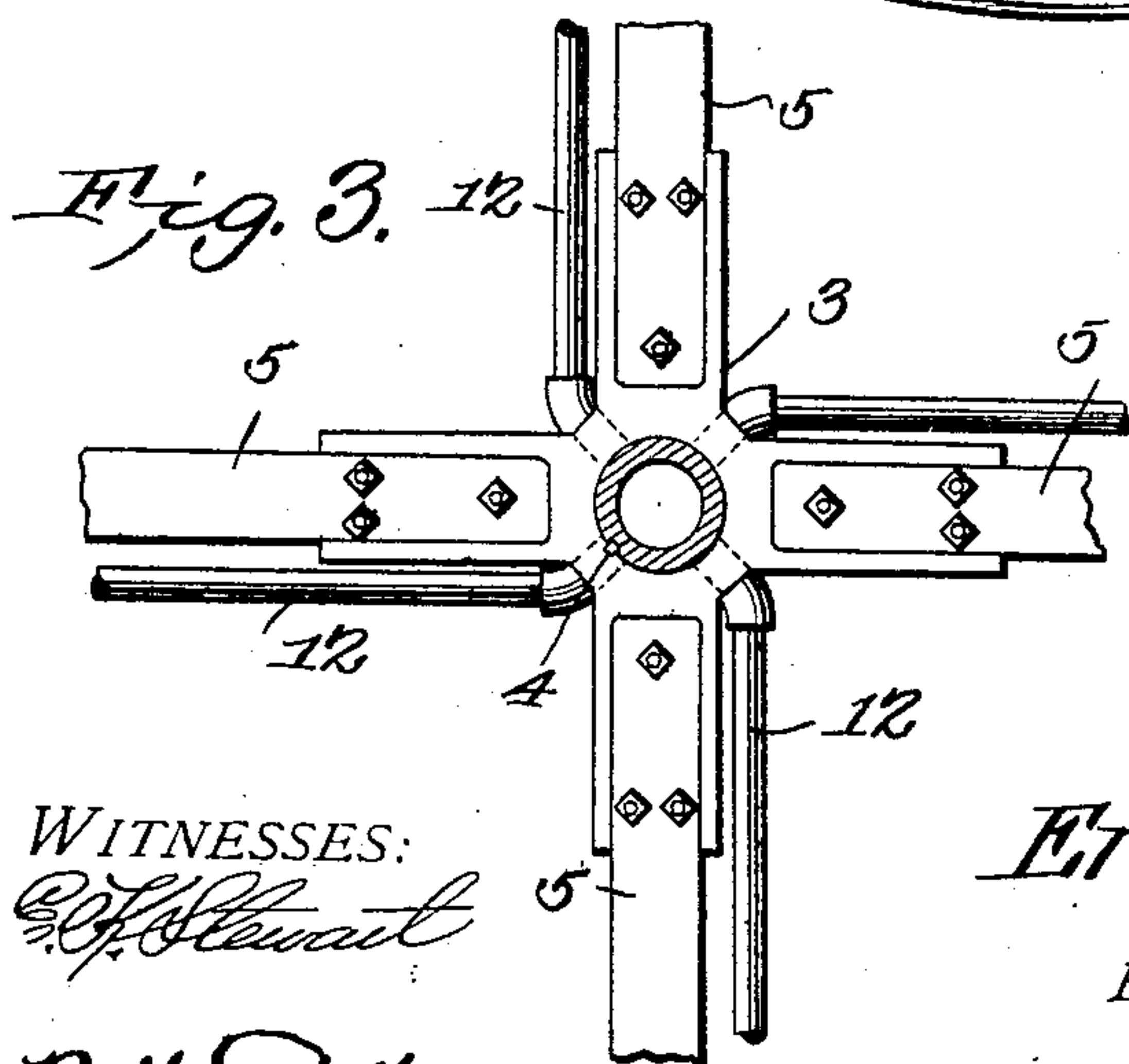
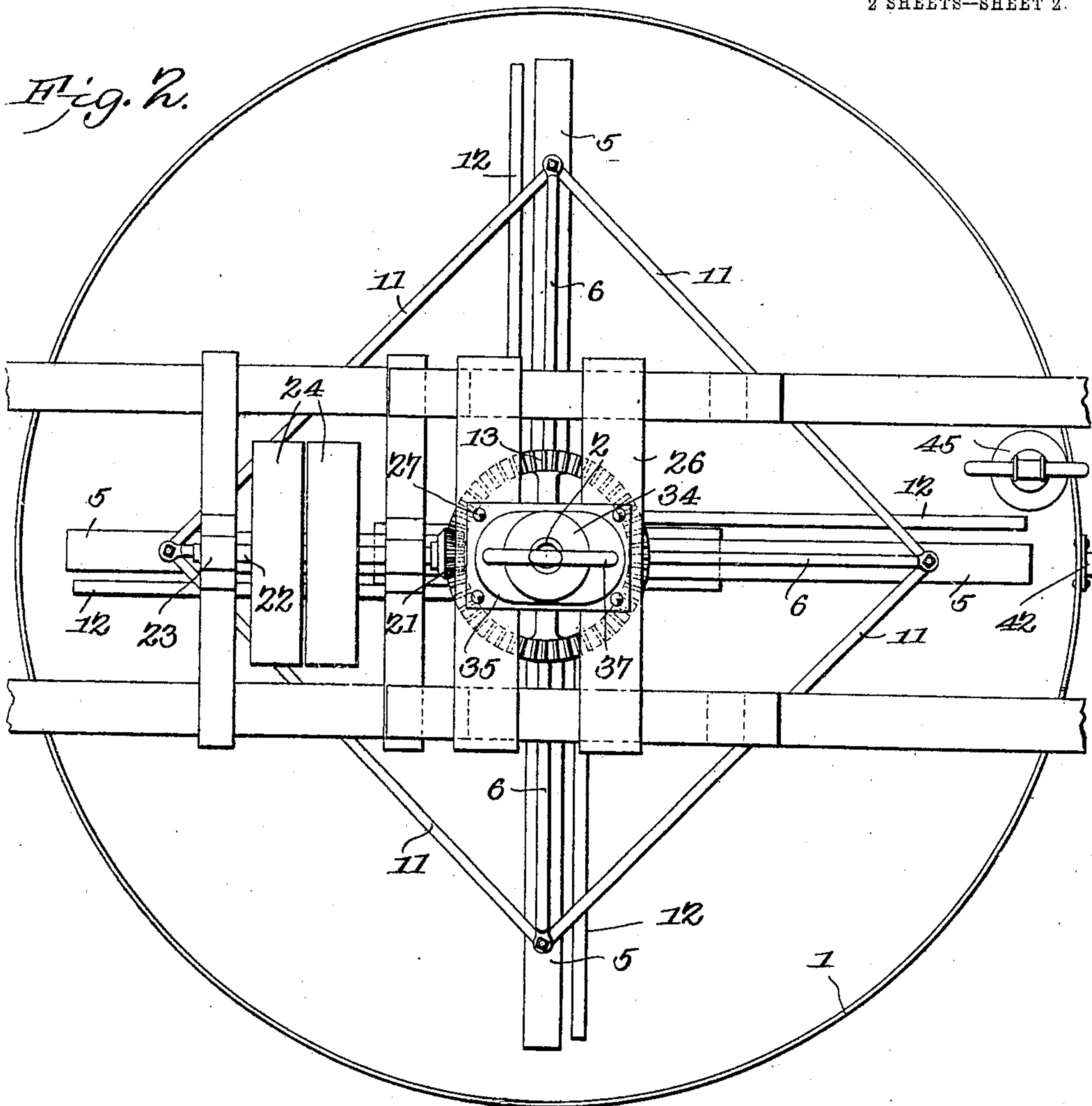
No. 832,252.

PATENTED OCT. 2, 1906.

E. L. GODBE.
COMBINED AGITATING AND LEACHING TANK.

APPLICATION FILED DEC. 5, 1905.

2 SHEETS—SHEET 2.



WITNESSES:
E. J. Stewart
R. M. West

Ernest L. Godbe, INVENTOR,
By *C. A. Snow & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

ERNEST L. GODBE, OF SALT LAKE CITY, UTAH.

COMBINED AGITATING AND LEACHING TANK.

No. 832,252.

Specification of Letters Patent.

Patented Oct. 2, 1906.

Application filed December 5, 1905. Serial No 290,482.

To all whom it may concern:

Be it known that I, ERNEST L. GODBE, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented a new and useful Combined Agitating and Leaching Tank, of which the following is a specification.

This invention relates to a combined agitating and leaching tank.

The object of the invention is to improve the manner in which the muller-shaft is supported and operated relatively to the tank, to improve the manner of connecting the muller-arms with the muller-shaft, and to improve the present methods of applying the leaching liquids to the sands.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a combined agitating and leaching tank, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like characters of reference indicate corresponding parts, Figure 1 is a view in elevation, partly in section, of a leaching-tank constructed in accordance with the present invention. Fig. 2 is a top plan view. Fig. 3 is a horizontal sectional view of a portion of the muller-shaft and the muller-arms. Fig. 4 is a vertical longitudinal sectional view through the lower portion of the muller-shaft, showing more particularly the manner in which the spider that carries the muller-arms is combined with the muller-shaft.

Referring to the drawings, 1 designates the leaching-tank, which may be of the usual or any preferred construction, and as the same forms no part of the present invention further description is deemed unnecessary.

The improvements that constitute this invention are a novel form of muller-shaft, a novel driving mechanism therefor, and a novel support for the shaft designed to supplant the ordinary step-bearing generally employed in the bottoms of the leaching-tanks.

The first feature of novelty resides in the muller-shaft 2, which, as shown, is hollow, thereby to form a conduit for conveying the leaching solutions from a suitable source of supply to the tank, the solutions being fed into the upper end of the shaft. Secured to the lower end of the shaft is a spider 3, that is positively held against turning relatively thereto by a key 4. The arms of the spider

are three-sided or box-shaped and have secured in them wooden muller-arms 5, the outer ends of which are stayed against any tendency to yield vertically in either direction by brace-rods 6; the lower ends of which are bolted or riveted at 7 to the muller-arms near their outer extremities and the upper ends of which pass through ears 8, carried by a collar 9, rigid with the shaft. To effect requisite adjustment of the muller-arms to cause them always to occupy a position parallel with the bottom of the tank, each brace is provided with two nuts 10, disposed on opposite sides of the ear, and by the proper manipulation of the nuts a brace may be moved to or from the muller-shaft, thus to move the muller-arm with which it is connected to the desired position, and by tightening the nuts the arm will be held in its adjusted position. To hold the muller-arms against any tendency to yield horizontally, brace-rods 11 are provided, which are secured to the muller-arms by the holding means 7, as clearly shown in Figs. 1 and 2.

Tapped into the spider are four perforated pipes 12, which communicate with a bore of the muller-shaft and extend along the rear sides of the muller-arms, thus to prevent their positive contact with the material being treated, the outer ends of the pipes being closed by suitable caps. By this arrangement the leaching solutions supplied to the shaft are evenly and quickly distributed throughout the sands, so that a more thorough treatment thereof can be secured than with machines of this character in common use.

The second feature of novelty of the invention resides in the driving mechanism for the muller-shaft. This consists in part of a gear-wheel 13, which is provided with an elongated sleeve 14, that works in a bearing 15, mounted in one of the beams 16 of the supporting-frame of the driving mechanism, a collar 17, mounted on the lower end of the sleeve and held positively combined therewith by a set-screw or bolt 18, serving to prevent the separation of the gear-wheel from the bearing. As is common with apparatus of this character the muller-shaft is adapted to be raised and lowered by suitable mechanism, and in order to permit this the shaft is provided with a keyway 19, that is engaged by a key 20, rigid with the gear-wheel or sleeve 14. The gear 13 is engaged by a pinion 21, carried by one end portion of a shaft 22, mounted in suitable bearings 23 on the supporting-frame,

the other end portion of the shaft having combined with it two pulleys 24, one of which is loose on the shaft and the other keyed thereto and driven by a suitable belt. (Not necessary to be shown.)

The third feature of novelty of the invention resides in a novel form of bearing for the shaft to hold the same always in vertical position when in operation and to guide it in a vertical direction when the muller-shaft and its arms are raised from the tank. The bearing comprises an elongated sleeve 25, which is carried by a frame-timber 26 and is held combined therewith against movement by bolts 27. The upper face of the bearing is provided with a seat in which is disposed one member 28 of a ball-bearing, the other member 29 of which is loosely seated in a nut 30, threaded on the shaft and held against turning with relation thereto by a set-screw 31. The opposed faces of the members 28 and 29 are provided with annular registering grooves in which are disposed ball-bearings 32. It will be noted by reference to Fig. 1 that the walls of the seat in the nut are beveled at 33, and this is done to allow the member 29 readily to detach itself from the nut when the shaft is raised. When the parts are in the position shown in Fig. 1, the nut bears upon the member 29, and this holds the muller-arms out of engagement with the bottom of the tank. By adjusting the nut 30 upon the shaft the muller-arms may be moved to and from the bottom of the tank, as will be readily understood.

The fourth feature of novelty of the invention resides in a novel form of bearing for supporting the shaft for rotary movement when being lifted from the tank or when working down toward the bottom thereof. This part of the invention comprises a ball-bearing race, one member 34 of which is screwed onto the shaft and the other member 35 of which engages the sleeve portion 36 of the member 34 and has combined with it a bail 37, provided with an eye 38, with which connects the overhead tackle for raising and lowering the shaft. The opposed faces of the members 34 and 35 are provided with registering grooves in which are disposed ball-bearings 39, and in order to hold the member 35 properly positioned relatively to the member 34 there is a collar 40 disposed on a sleeve of the member 34 and upon which the member 35 bears, a set-screw 41, passing through the collar and through the sleeve in the member 34 and into the shaft, serving to hold the parts

properly assembled relatively to each other and to the shaft.

It will be seen from the foregoing description that when the muller-arms are at their lowest position the weight of the shaft is sustained by the ball-bearings 32 and that when the shaft is being raised its weight is supported by the ball-bearings 39, which will permit the shaft freely to turn without movement of the bail.

The tank is provided at one side with a flange 42 to be engaged by a draw-off pipe (not shown) and in its bottom is provided with a valve-seat 43, in which works a valve 44, that is operated by a rod 45, extending above the upper end of the tank. The valve-seat has connected with it a pipe 46, through which the contents of the tank may be drawn off.

I claim—

1. In a tank of the class described, a hollow muller-shaft, a spider secured to the lower end thereof, muller-arms secured to the spider, perforated distributing-pipes arranged along the muller-arms and communicating at their inner ends with the bore of the muller-shaft, and means for adjusting the muller-arms relatively to the shaft.

2. In a tank of the class described, the combination with a muller-shaft provided with a longitudinal keyway, of a supporting-beam, a bearing carried by the beam, a driven gear-wheel having a sleeve extending through the bearing, a collar secured to the lower end of the sleeve, a key carried by the gear and engaging the keyway of the shaft, muller-arms carried by the shaft and means for adjusting the muller-arms relatively to the bottom of the tank.

3. In a tank of the class described, the combination with a muller-shaft, of a ball-bearing race carried by the upper end of the shaft, and a bail carried by one member of the race.

4. In a tank of the class described, the combination with a muller-shaft and muller-arms carried thereby, of a ball-bearing race adapted to support the muller-arms out of contact with the bottom of the tank, and a ball-bearing race carried by the upper end of the shaft and operating to support the shaft while being lifted.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ERNEST L. GODBE.

Witnesses:

CHAS. W. LAWRENCE,
A. H. GODBE.