No. 894,590. PATENTED JULY 28, 1908.

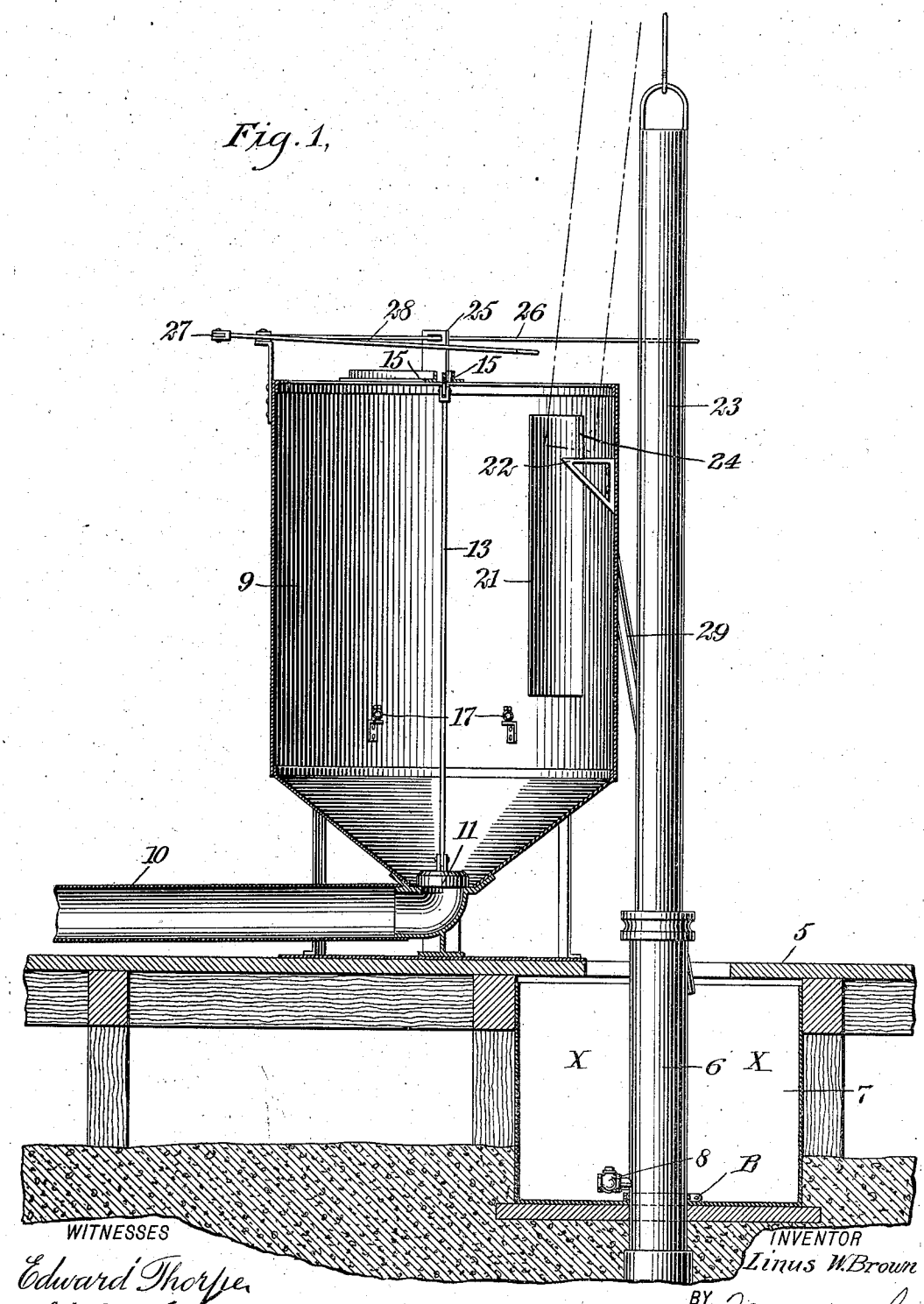
L. W. BROWN.

APPARATUS FOR OIL WELLS.

APPLICATION FILED FEB. 7, 1908.

3 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

Edward Thorpe.

INVENTOR

Linus W. Brown

BY Munn & Co

ATTORNEYS

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3 SHEETS—SHEET 2.

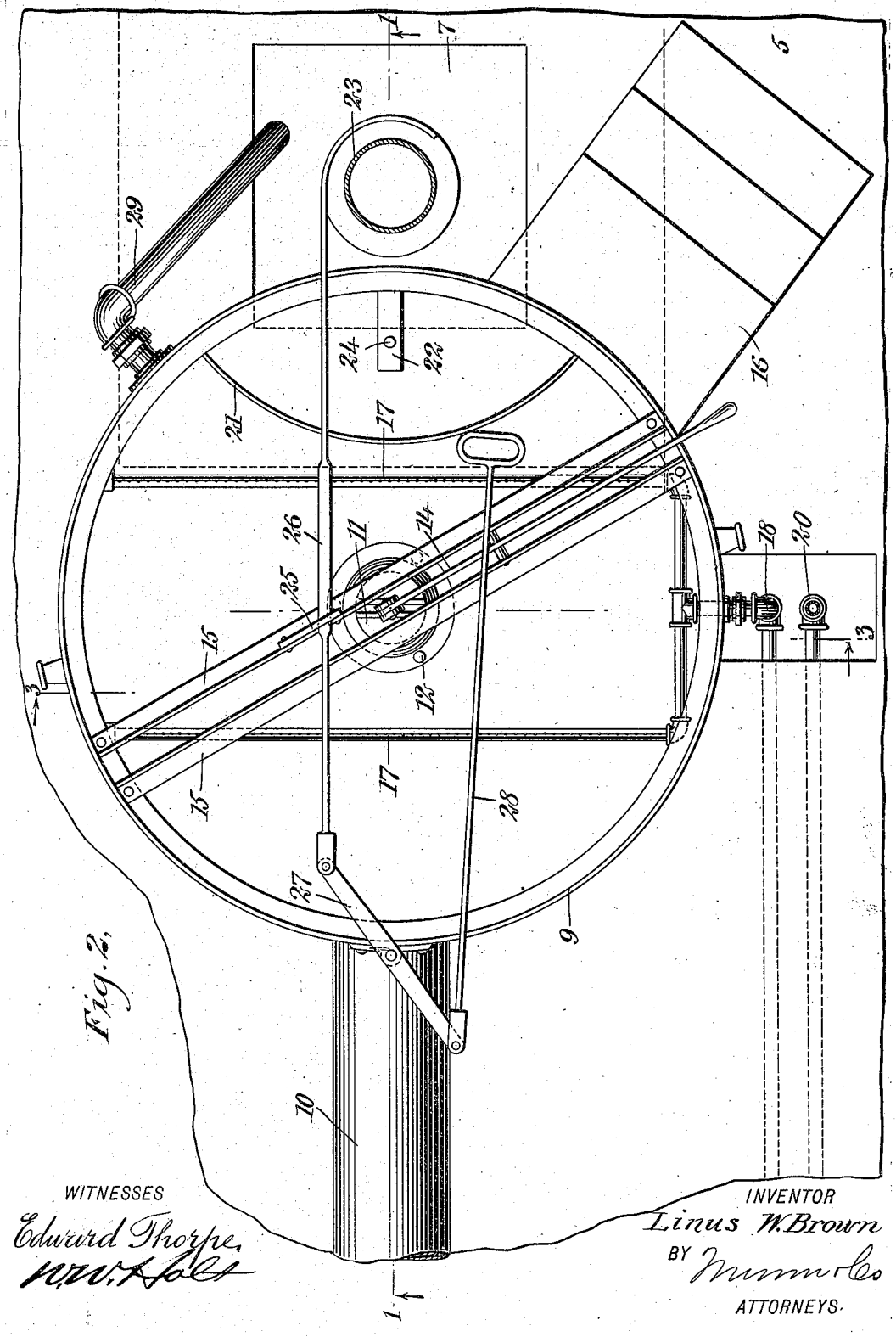


Fig. 2.

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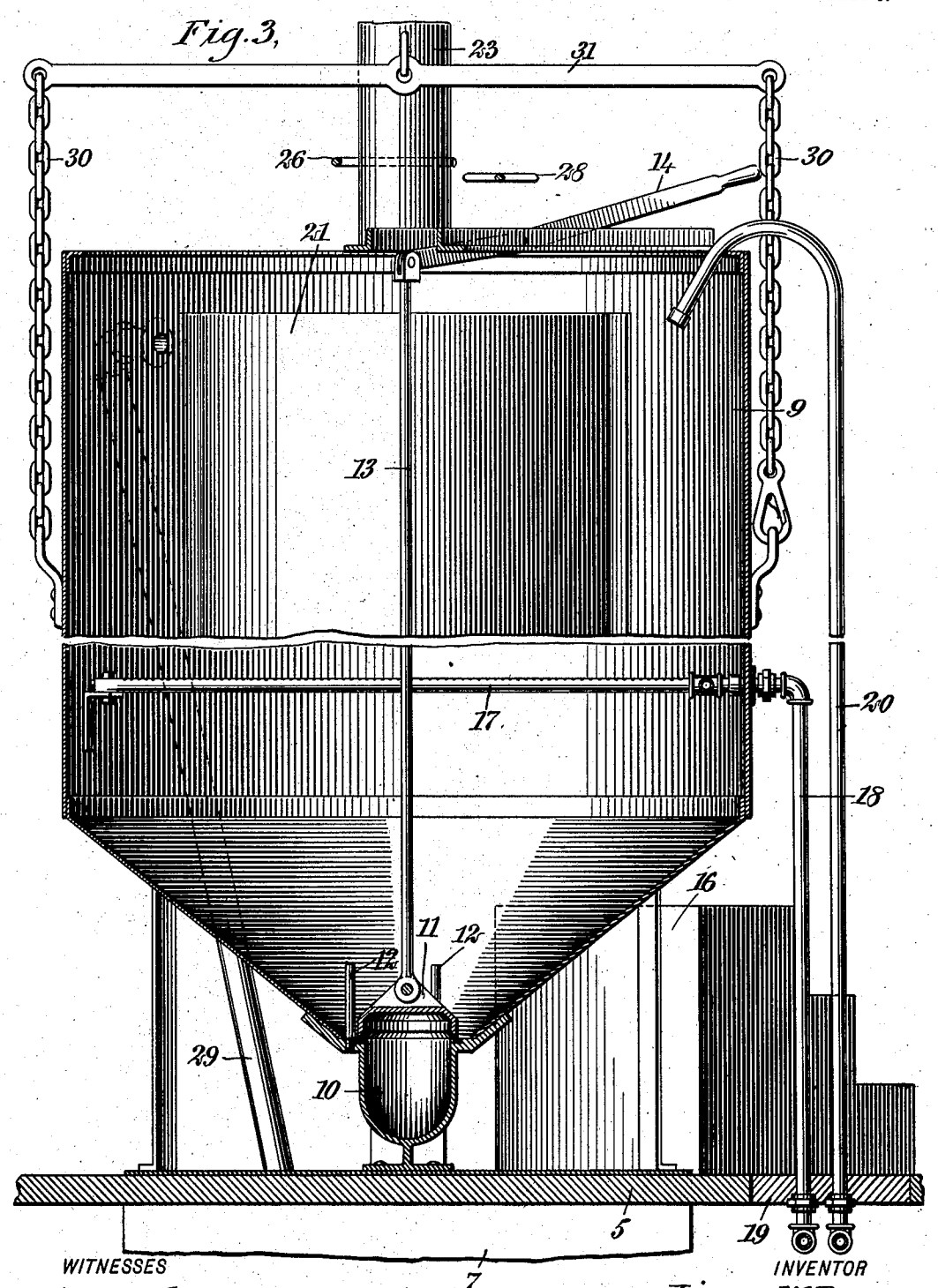
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3 SHEETS—SHEET 3.

Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

LINUS W. BROWN, OF BAKERSFIELD, CALIFORNIA.

APPARATUS FOR OIL-WELLS.

No. 894,590. Specification of Letters Patent. Patented July 28, 1908.

Application filed February 7, 1908. Serial No. 414,665.

To all whom it may concern:

Be it known that I, LINUS W. BROWN, a citizen of the United States, and a resident of Bakersfield, in the county of Kern and State of California, have invented a new and Improved Apparatus for Oil-Wells, of which the following is a full, clear, and exact description.

This invention is an improvement in appurtenances to oil wells, and has for its object to separate, and thereby save, the oil from the dredgings, and also save such oil as leaks around the stuffing-box and the upper portion of the well-casing.

In oil-well districts no small amount of oil annually goes to waste by the discarding of the dredgings, commonly known as the sludge, which is principally composed of oil and sand. This waste I propose to avoid by my invention, the same embodying a separating tank for the separation of the oil from the sand preparatory to passing the sludge to the dump.

The invention further contemplates a receptacle for catching the drip around the stuffing box arising from leaks, and from pulling tubing from the well, and passing this oil, together with that obtained from the separating tank, back to the well or to a suitable storage.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional view, substantially on the line 1—1 of Fig. 2, of an oil well having my improvements applied thereto; Fig. 2 is a plan of the apparatus partly in section; and Fig. 3 is a central vertical sectional view on the line 3—3 of Fig. 2 looking in the direction of the arrow.

5 indicates a derrick floor through which projects the well casing 6. Underneath the derrick floor, and arranged immediately about the upper portion of the casing, is a drip tank or receptacle 7 discharging into the well through the valve 8 connected to the casing, or the oil from this tank may be removed by a pump.

On the derrick floor 5, closely adjacent to the vertical line of the well-casing, is rigidly mounted a separating tank 9, preferably having a conical bottom to facilitate the discharge through a waste-pipe 10 which ordinarily leads to the dump. The communication between this pipe and the bottom of the tank is controlled by a valve 11, guided between upright studs 12. The stem 13 of the valve 11 passes centrally through the tank to near the top thereof where it is connected with an operating-lever 14, fulcrumed between two bars 15, which are slightly separated and bridge the top of the tank; the lever itself preferably being extended to overhang the edge of the tank where it is accessible from the top of steps 16 mounted on the derrick floor 5.

Arranged crosswise of the separating tank as shown, are perforated pipes 17, connecting with a common supply pipe 18 leading from a suitable source of steam supply and passing through a removable block 19, which forms a portion of the derrick floor. Also passing through this block is a water supply pipe 20, leading to and overhanging the top edge of the separating tank.

At that side of the separating tank adjacent to the oil-well, a curved shield 21 is provided, which extends a considerable portion of the tank's depth and incloses a suitably supported bracket 22, on which is adapted to seat a long tubular bucket 23, commonly known as a sand pump, the said bracket being provided with a pin 24, in event the bottom of the bucket has a flat valve, otherwise this pin is not needed.

Slidably supported at the top of the tank, ordinarily through a guide 25, carried by one of the cross-bars 15, is a hooked arm 26, traveling across the well formed in the separating tank by the casing 21, and extending in the path of the sand pump. The opposite end of this arm is pivotally connected to one extremity of a lever 27, fulcrumed on the tank, and the other extremity of the lever is attached to an operating handle 28, also passing within convenient reach from the top of the steps 16. Near the top of the separating tank, a drain pipe 29 connects and leads to the receiving tank 7; also in connection with the separating tank is a bridle consisting of chains or other flexible devices 30 connecting diametrically opposite points of the tank with a bar 31.

In the operation of the apparatus, the operator standing on the elevated platform afforded by the steps 16, works the handle 28 to draw the bottom of the sand pump over the bracket 22, as shown in dotted outline in Fig. 1, after the pump has been lowered in

the well and filled with sludge, principally sand and oil. The pump is then discharged at its bottom through the well to the bottom of the separating tank, which contains water, heated by the perforated steam pipes, the valve 11, controlling the communication with the waste pipe 10, at this time being closed. After the sand pump has been repeatedly emptied into the separating tank until the latter is substantially full, the oil which, when heated and passed through water in the bottom of the tank, readily separates and rises from the sand, flows through the drain pipe 29 into the receiving tank and thence through the valve 8 and well casing back to the well. Such oil as the sand contains is separated by the introduction of live steam through the perforated pipes 17, heating the water and oil, which operates to thin the oil and thereby facilitate its flow to the surface. As the separating tank is filled with sludge from the sand pump, the sand and oil separate under heat, and the oil flows to the top and passes to the receiving tank and the sand and sludge fall to the bottom and are removed by the sand valve 11 into the sluice pipe 10. The operation is continued, in the removal of the oil and sand till the sand pumping of the well is completed, when the oil is all delivered to the pipe 29, by filling the separating tank with water, when the water is let out through the sand valve 11 and sluice pipe 10 and the separating tank is ready to be removed to another well, it being handled to and from the wagon to the well by the sand line attached to the bridle 31. Such oil as runs down about the stuffing-box and the upper portion of the well-casing, resulting from the pulling of tubing, as also dripping from the sand pump as it is repeatedly hoisted, is caught in the drip tank 7 and is returned to the well with the oil passing through the pipe 29, as shown, or pumped to the storage, as desired.

The apparatus it will be observed is of a portable nature, the separating tank and connections being adapted to be bodily lifted from the platform by the bridle after disconnecting the steam and water pipes at the removable block 19, and also disconnecting the waste pipe.

The invention as shown and described while being the preferred practical construction of my improvement may obviously be modified in particulars without departing from the nature of the invention as defined in the claims annexed.

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

1. The combination of an oil well, a sand pump for raising the sludge from the well, a separating tank, and means for drawing the pump over the top of the tank when the pump is withdrawn from the well.

2. The combination of an oil well, a sand pump for raising the sludge from the well, a separating tank having a well at one side thereof, a support arranged within the well, and means for drawing the sand pump over the top of said support when withdrawn from the oil well, preparatory to discharging the contents of the pump in the well of the separating tank.

3. In an apparatus of the character described, a separating tank adapted to receive the sludge of an oil well, and a steam discharge leading into the tank a substantial distance above its bottom and below the normal level of the sludge for facilitating the separation of the oil from the sand of which the sludge is composed.

4. In an apparatus of the character described, a separating tank for receiving the sludge of an oil well, means for introducing live steam into the tank approximately midway its height for facilitating the separation of the oil from the sand of which the sludge is composed, a waste pipe leading from the bottom of the tank for the discharge of the sand, and a pipe leading from the upper portion of the tank for the discharge of the oil.

5. In an apparatus of the character described, a separating tank for receiving the sludge of an oil well, perforated steam pipes arranged within the tank below the normal level of the sludge, and a water supply leading into the tank.

6. In combination with an oil well, a separating tank for receiving the sludge from the well, a discharge pipe leading from the bottom of the tank, a platform arranged adjacent to the said tank, a sand pump for raising the sludge from the well, a valve for controlling the communication between the bottom of the tank and the waste pipe, and means for actuating the valve, and means for drawing the sand pump over the top of the settling tank, accessible from said platform.

7. In combination with an oil well, a receiving tank surrounding the upper portion of the well casing and discharging therethrough back into the well, a settling tank for receiving the sludge from the well, a waste pipe leading from the bottom of the settling tank, a valve controlling the communication between the tank and the waste pipe, a discharge leading from the upper portion of the tank to the drain pipe, a sand pump for raising the sludge from the well, means for drawing the sand pump over the top of the settling tank preparatory to the discharge thereof after it has been withdrawn from the well, and means for actuating the last mentioned means, and means for actuating the valve, at the top of the settling tank.

8. In combination with an oil well, an

open receiving tank surrounding the upper portion of the well casing and discharging into the well, a separating tank for receiving the sludge from the well and separating the oil therefrom, and means for discharging the oil from the separating tank into the receiving tank.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LINUS W. BROWN.

Witnesses:
JAMES E. ENGLAND,
WILLIAM H. CASTLE.