

J. B. LIVINGSTON.

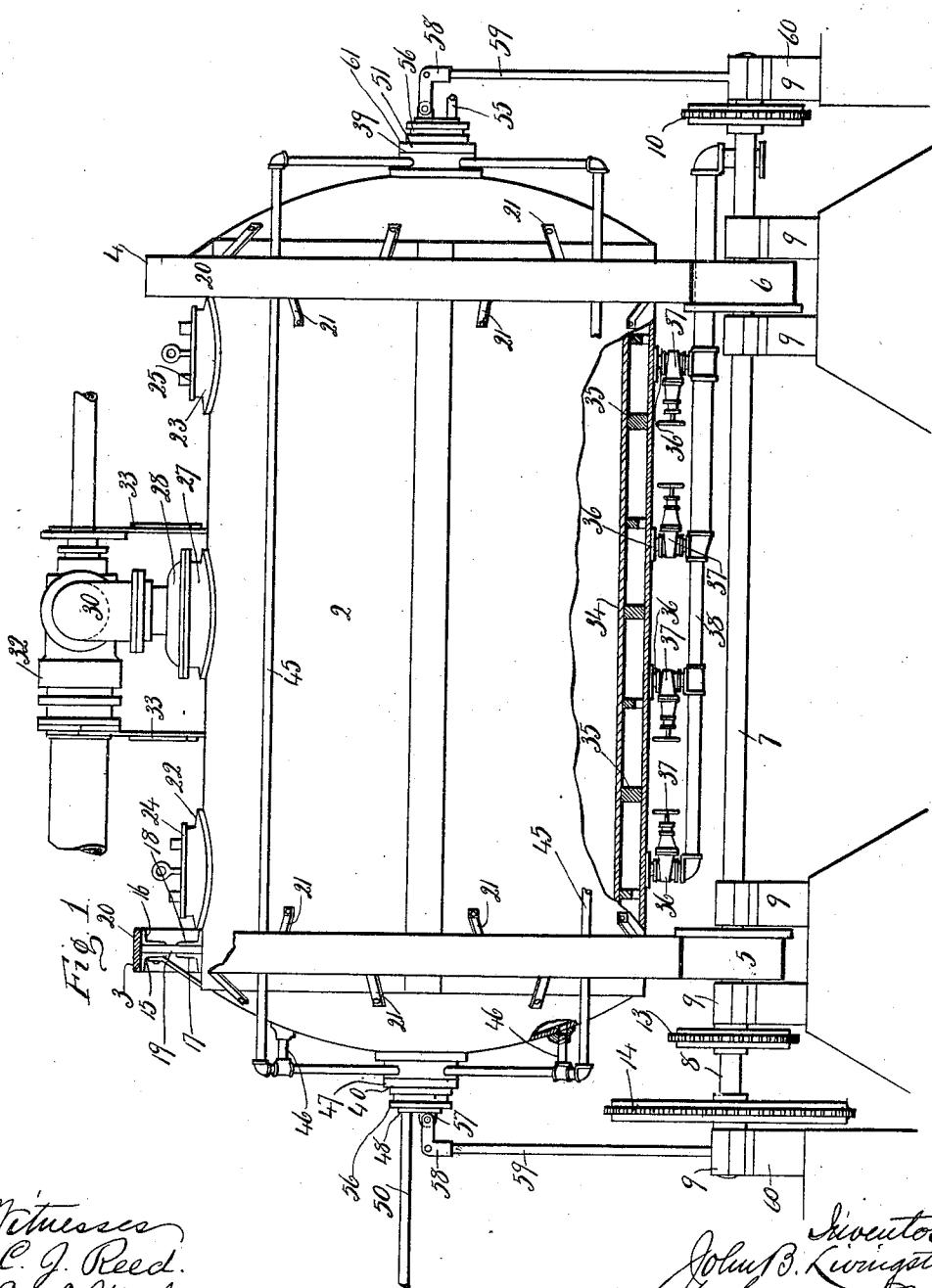
COMBINED COOKER, PRESS, AND PERCOLATOR.

APPLICATION FILED JUNE 20, 1910

999,508.

Patented Aug. 1, 1911.

3 SHEETS—SHEET 1.



Witnesses
C. J. Reed.
C. L. Reed

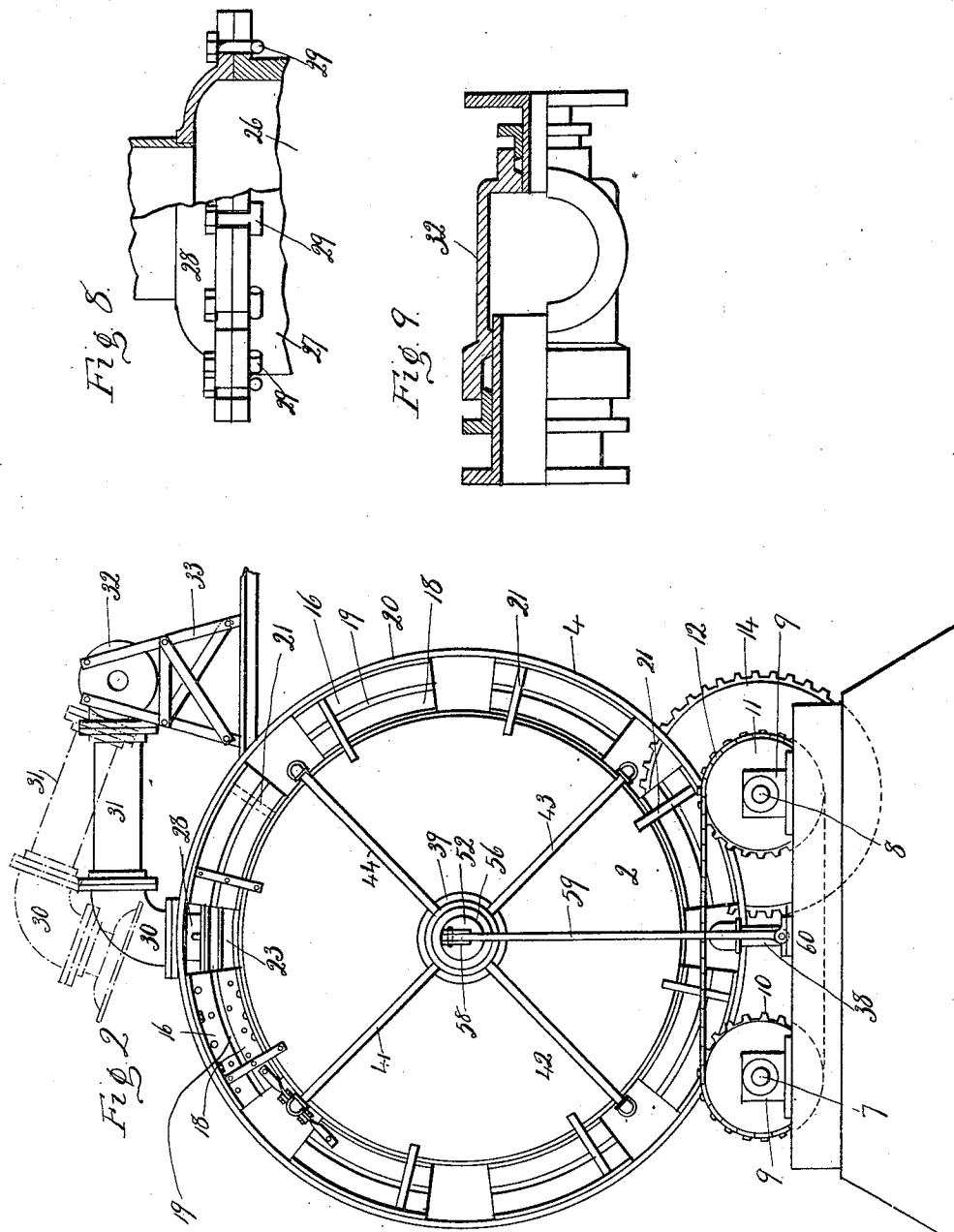
John B. Livingston
Esq. Attorney
for the People

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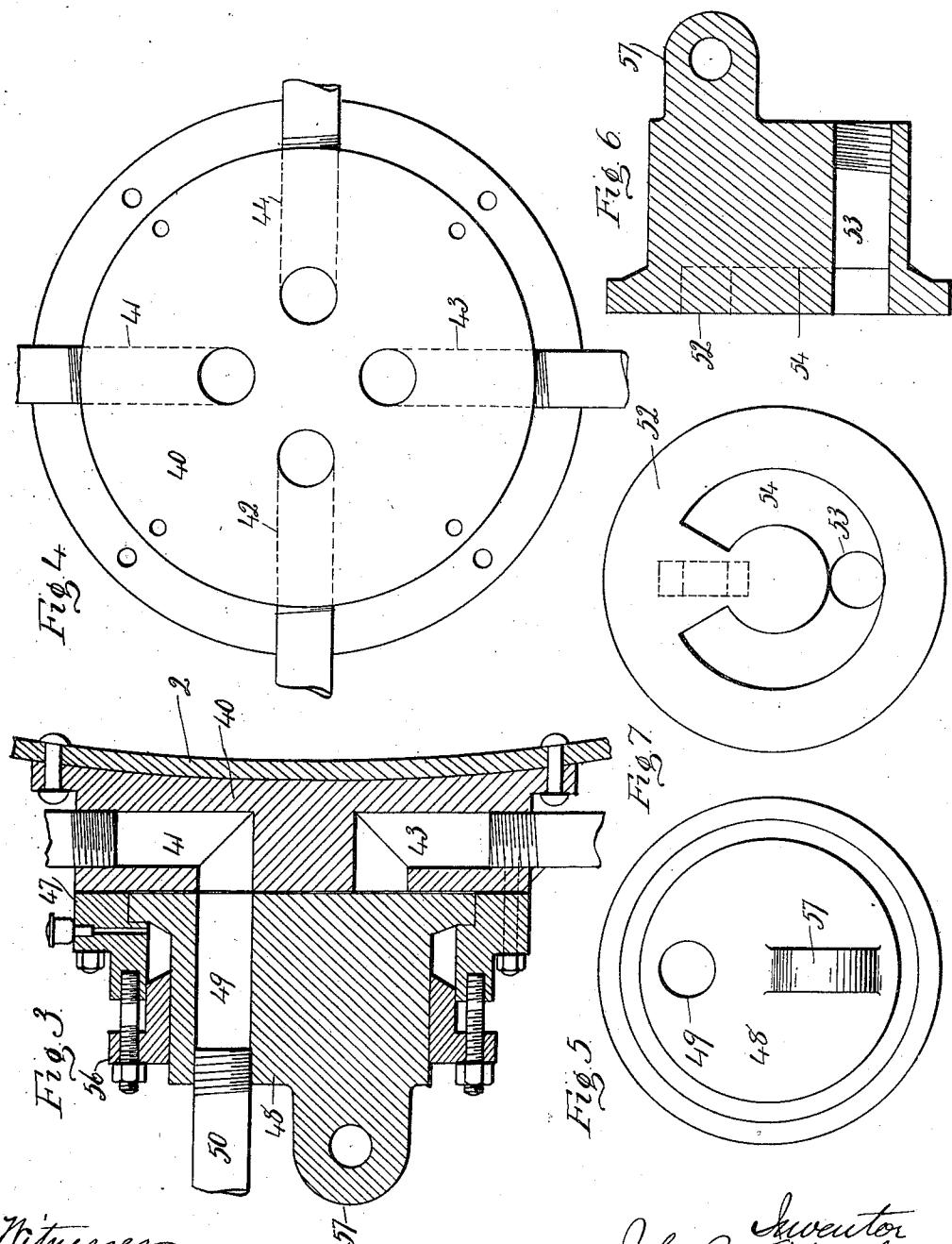
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C. L. Reed

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UNITED STATES PATENT OFFICE.

JOHN B. LIVINGSTON, OF NEW HAVEN, CONNECTICUT.

COMBINED COOKER, PRESS, AND PERCOLATOR.

999,508.

Specification of Letters Patent. Patented Aug. 1, 1911.

Application filed June 20, 1910. Serial No. 567,929.

To all whom it may concern:

Be it known that I, JOHN B. LIVINGSTON, a citizen of the United States, residing at New Haven, in the county of New Haven 5 and State of Connecticut, have invented a new and useful Improvement in Combined Cookers, Presses, and Percolators; and I do hereby declare the following, when taken in connection with the accompanying drawings 10 and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

15 Figure 1 a side view partially in section of a combined cooker, press and percolator constructed in accordance with my invention. Fig. 2 an end view of the same. Fig. 3 a sectional view of the outlet valve at the 20 left hand end of the apparatus. Fig. 4 a plan view of one of the valve blocks. Fig. 5 an end view of the outlet valve. Fig. 6 a sectional view of the inlet valve. Fig. 7 a face view of the same. Fig. 8 a broken sectional 25 view on an enlarged scale of the inlet or vapor opening at the top of the tank showing the vapor pipe connected therewith. Fig. 9 a sectional view of the compound coupling box.

30 This invention relates to a combined cooker, press and percolator for treating garbage and refuse of similar nature, and particularly to an apparatus which is adapted to be revolved either for cooking garbage 35 or for removing it from the device.

One object of the invention is to provide a considerable support for the cylindrical tank or casing so that it may be conveniently revolved. In cooking garbage and other 40 refuse matter a vent is necessary in order to properly and thoroughly cook it, and in cooking material of this character by steam a vent of some character must be employed in order to relieve the pressure of gases 45 thrown off by the material or the pressure of steam in the tank, and another object is to provide a vent which will work automatically and not clog, and to provide means whereby the steam in treating the garbage 50 may be controlled in the desired manner; and a still further object is to press out the surplus water in the material being cooked, before removing from cooker, that it may be handled in a more sanitary manner; and a 55 still further object is to so arrange the cook-

ing tank that the surplus water may be pressed out with small loss of solids and be carried off from cooker in pipes.

A still further object is to provide for connecting the tank or casing with a suitable 60 outlet for vapor; and the invention consists in the construction hereinafter described and particularly recited in the claims.

In carrying out my invention I employ a cylindrical tank 2 provided at opposite ends 65 with rings or flanges 3 and 4 to be more fully hereinafter described; these rings resting on rollers 5 and 6 at opposite ends, the rollers being mounted on shafts 7, 8, suitably supported in bearings 9.

70 Mounted at one end of the shafts 7 and 8 are sprocket wheels 10 and 11, connected by a chain 12, and on the opposite ends of the shafts are corresponding sprocket wheels 13 connected in the same manner as the wheels 75 10 and 11. On one of the shafts and as herein shown as 8, is a large sprocket wheel 14 adapted to be driven from any convenient source. The rings 3, 4, are made up of angle irons 15, 16, 17 and 18 riveted to segmental sections of webs 19, the angle irons 15 and 16 being bolted to a tire 20. The spaces between the webs 19 provide room for steam pipes as will be hereinafter described, 80 and the rings are connected with the tank by stay rods 21.

The tank is provided with manholes 22, 23, adapted to be closed by covers 24, 25, and at what we will term the top is a central opening 26 having a flange 27 adapted 90 to be coupled with a hood 28 by T bolts 29. This hood is bolted to an elbow 30 and the elbow to a pipe 31 which enters a combined coupling box 32 mounted in a suitable frame 33 and so that when the hook is uncoupled from the flange 27 the pipe 31 may be lifted so as to swing the hood away from the opening 26. This pipe 31 leads through the coupling box to any suitable vapor chamber, 95 not shown. In the bottom of the chamber is 100 a perforated floor 34 divided by partitions 35, and opening out of the bottom are various outlets 36 each controlled by a valve 37 and entering a horizontally arranged pipe 38.

Secured to the center of one end of the 105 casing is an inlet block 39, and at the center of the opposite end is a corresponding outlet or vent block 40. These blocks are each provided with four ports 41, 42, 43 and 44, the ports in one block are connected with 110

corresponding ports of the other block by pipes 45 which extend longitudinally of the casing passing through the spaces formed between the webs 19, and each pipe has a 5 connection 46 with the interior of the tank. Coupled with the outlet block 40 at the left hand end of the casing is a ring 47 holding a stationary vent block 48 which is provided with a single port 49 connected with an outlet 10 pipe 50. The faces of the outlet block 48 and inlet block 52 are true with the faces of the blocks 39 and 40, and any wear between them may be taken up by crowding the rings 47 and 51 against the respective 15 blocks 39 and 40, a stuffing box 56 of usual construction being arranged around the blocks 48 and 52. The blocks 48 and 52 are held stationary by providing each with a rearwardly projecting lug 57 which are 20 coupled by a link 58 with vertically arranged supporting rods 59 pivotally mounted in a supporting block or bed 60.

At the right hand end of the tank and coupled with the inlet block 39 is a similar 25 ring 51 like the ring 47 and supporting a stationary inlet block 52 having an* inlet port 53 formed in its front face with a segmental groove 54 and so that steam entering the inlet pipe 55 coupling with the inlet 30 port 53 will communicate with three of the four pipes, the exception being the pipe which is uppermost, as shown being the pipe 41. When the pipe 41 is at the top, steam at the inlet to this pipe will be cut off and so 35 that the pipe 41 provides an outlet as at this point the vent block 48 has turned so that the outlet 49 registers with the pipe 41, and then during the time that one of the pipes is uppermost, or during substantially a 40 quarter of its revolution, it acts as a vent pipe. As the tank revolves steam is admitted through the three pipes, the mouths of which will be covered by the material being cooked, and the force of steam through 45 them will keep them clear. At the time they are in the position at the top of the tank and when above the material in the tank, they will be free and as steam is cut off from them the pressure of steam in the tank will 50 escape.

In the use of the device as a cooker, the pipe 31 is disconnected from the outlet and the opening 26 closed by a suitable cover. After the tank is filled it is set in motion 55 by turning the sprocket wheel 14 which turns the shaft 8, and this shaft owing to the connections of the sprockets turns the shaft 7, turning with them the rollers 5 and 6 on which the device rests. Steam is then 60 admitted through the inlet port 53, and as before stated, will pass through three of the steam pipes and enter the tank so as to cook the contents therein. When sufficiently 65 cooked, the horizontally arranged pipe 38 is connected with settling tanks, not shown,

and the valves 37 are opened. Steam is continued to be forced into the tank which compresses the contents and squeezes out the moisture which escapes through the perforated bottom and out the pipe 38 to settling 70 tanks, not shown. Then when sufficiently pressed steam is cut off and the pipe 38 disconnected so that the tank may be revolved. The manholes having been opened the contents will be discharged therein into a suitable 75 receptacle.

When used as a percolator the pipe 31 is coupled with an outlet so as to form a conductor for vapor, and the pipe 38 coupled with a treating or separating tank. The 80 tank being loaded naphtha is pumped into it and allowed to percolate through the perforated bottom 34 and escape through the outlet pipe 38. When sufficiently washed with naphtha to extract all grease, the steam is admitted to drive off the remaining naphtha, and the vapor thus created is carried off 85 through the pipe 31 to a suitable condenser.

To empty the device when used as a percolator, the pipe 31 will be again disconnected as well as the outlet pipe 38, and the casing revolved so as to dump the contents out of the openings in the top of the case. It will therefore be seen that the opening in the 90 top of the tank provides not only for the loading and discharging of material to be treated, but also for the introduction of a solvent and discharge of vapor, and the pipe connected therewith provides for the inlet 95 of solvent and discharge of the vapor. 100

I claim:—

1. A device of the class described comprising a cylindrical tank, a rim at each end, said rims formed from sectional webs connected by angle irons with the tank and with a tire, roller bearings on which the rings rest, and means for conducting the steam into the tank. 105

2. A device of the class described comprising a cylindrical tank, inlet and outlet blocks secured to respective ends of the same, and pipes connected thereto opening into the tank, stationary blocks supported adjacent to said blocks, steam pipes coupled with said blocks one of said blocks having an outlet and the other an inlet port, and means for holding said block stationary. 110

3. A device of the class described comprising a cylindrical tank mounted on suitable bearings and capable of being revolved, a valve block at each end of the tank, four pipes connected with the said blocks, a valve at one end having an inlet port, said inlet port adapted to communicate with three of said pipes, the valve at the opposite end having an outlet port connected with the fourth pipe, and means to revolve said tank. 115

4. A device of the class described comprising a cylindrical tank adapted to be revolved, said tank formed at the top with 120

an opening through which material to be treated may be entered or discharged, a hood adapted to be detachably coupled to said tank over said opening, a swinging pipe 5 opening into said hood, a solvent inlet opening into said pipe, and a vapor outlet from said pipe.

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

JOHN B. LIVINGSTON.

Witnesses:

FREDERIC C. EARLE,
CLIFFORD J. REED.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."