

J. B. LIVINGSTON.

PERCOLATOR.

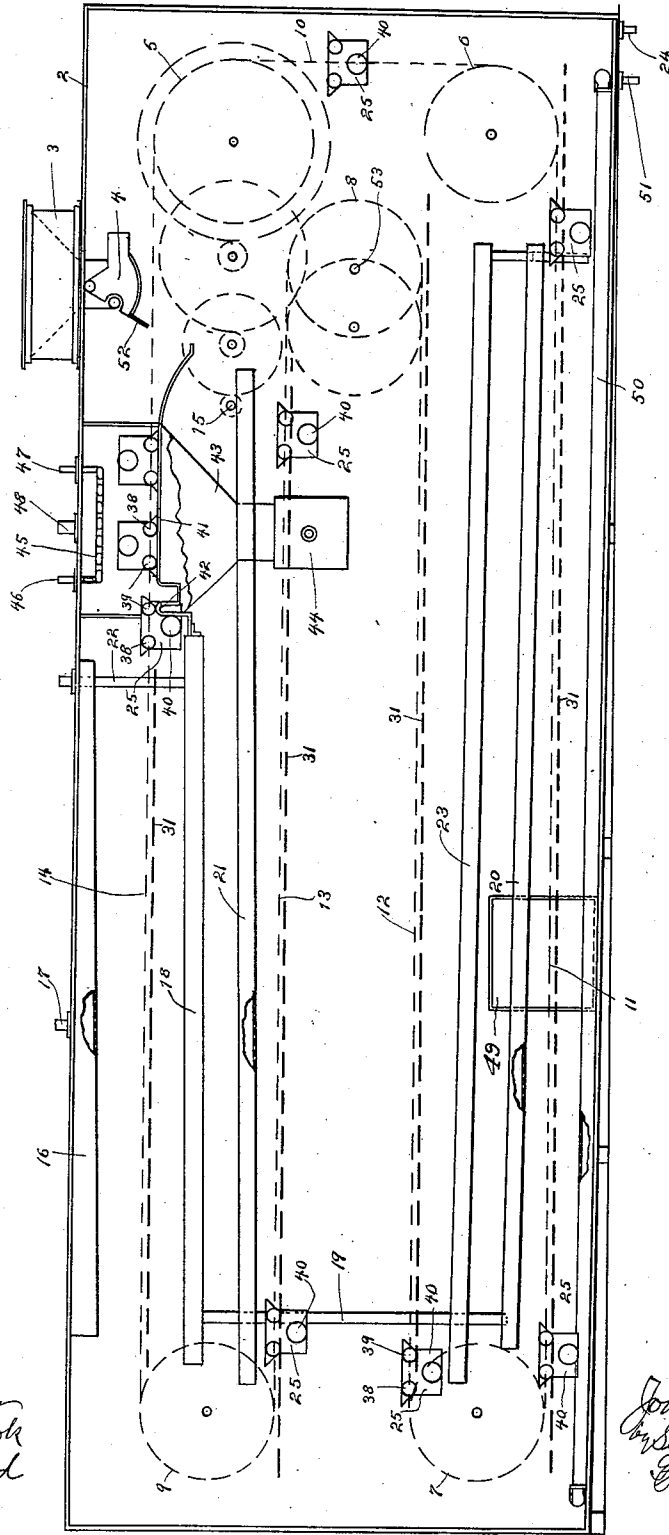
APPLICATION FILED MAY 15, 1911.

1,017,222.

Patented Feb. 13, 1912.

3 SHEETS—SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 2.

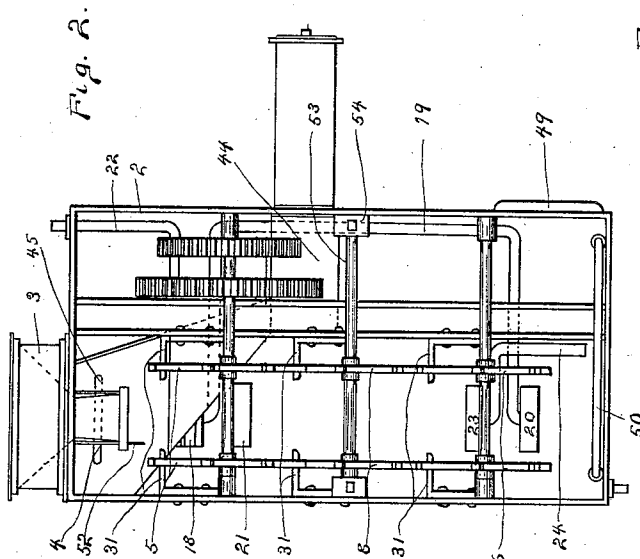
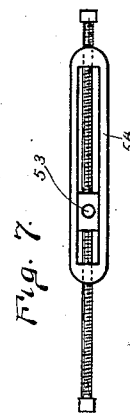
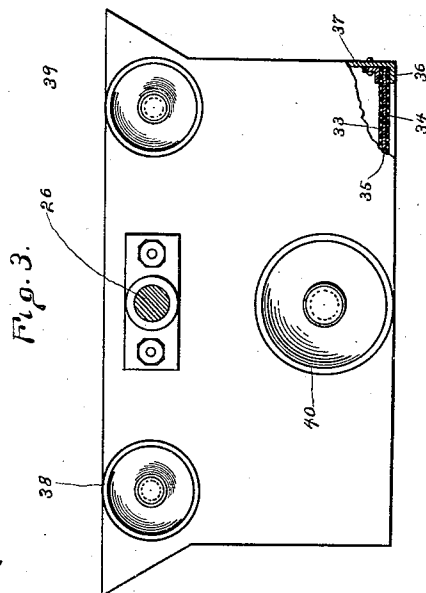
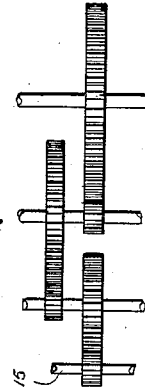


Fig. 6.



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3 SHEETS—SHEET 3.

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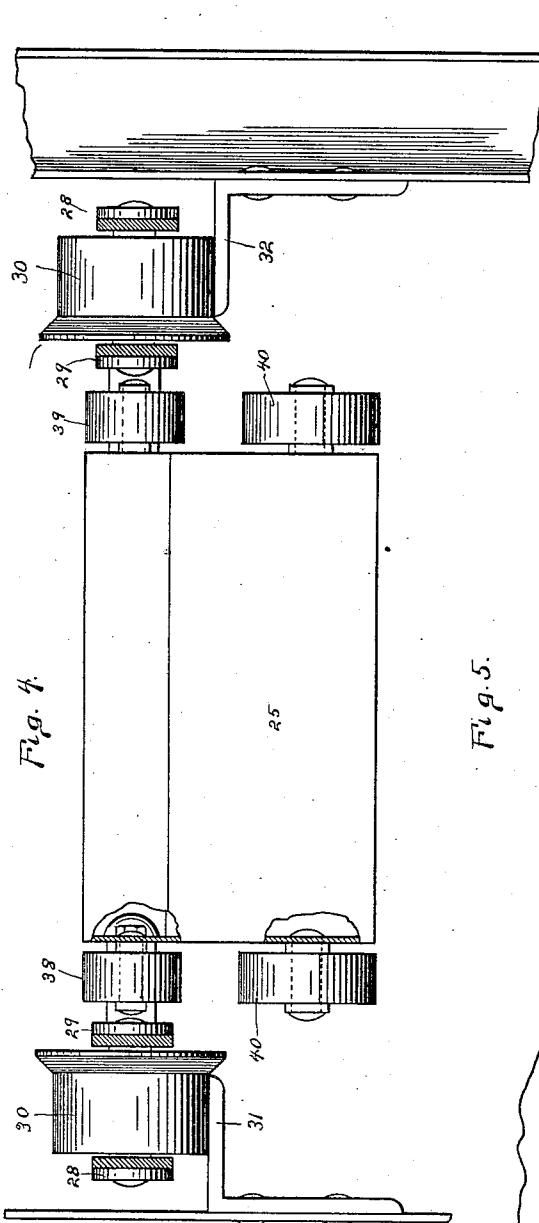


Fig. 4.

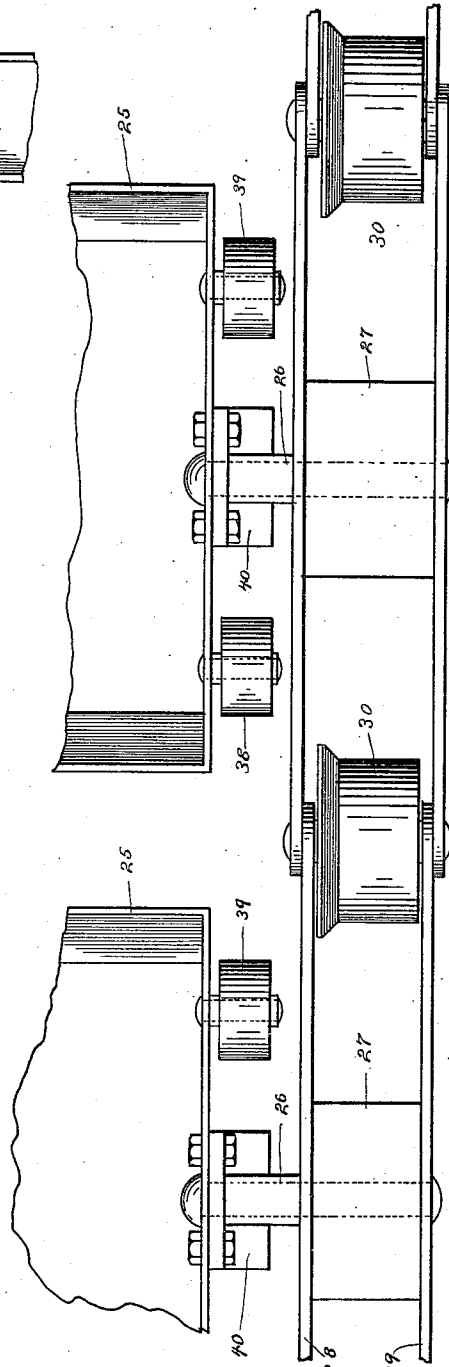


Fig. 5.

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UNITED STATES PATENT OFFICE.

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PERCOLATOR.

1,017,222.

Specification of Letters Patent.

Patented Feb. 13, 1912.

Application filed May 15, 1911. Serial No. 627,282.

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 and State of Connecticut, have invented a new and useful Improvement in Percolators; and I do hereby declare the following, when taken in connection with the accompanying drawings 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—

Figure 1 a diagrammatic side view of a percolator constructed in accordance with my invention. Fig. 2 an end view with the end of the case removed and the chains and buckets omitted. Fig. 3 a side view on an enlarged scale of one of the buckets, a portion broken away to show the construction of the bottom. Fig. 4 an end view of one of the buckets showing its connection with the chain, and track for supporting the same. Fig. 5 a broken top or plan view of portions of two buckets showing their connection with the chain. Fig. 6 a detailed plan view of the driving mechanism. Fig. 7 a side view of the tension device for the chain.

This invention relates to an improvement in percolators, particularly for treating garbage and other oil or grease bearing substances, the object being a simple arrangement whereby the material may be fed into carriers, and while in these carriers thoroughly washed and then discharged; and the invention consists in the construction hereinafter described and particularly recited in the claims.

In carrying out my invention, I employ a suitable housing 2 provided at its top with a receiving hopper 3 the mouth of which is closed by a swinging gate 4 provided with a lever 52. Within the housing and suitably mounted therein are five pairs of sprocket wheels 5, 6, 7, 8 and 9 over which a chain passes providing runs 10, 11, 12, 13 and 14. Motion is imparted to one of the sprockets 5 through a series of gears with a driving shaft 15. In the top of the casing and over the run 14 is a spray-pan 16, having a perforated bottom fed through an inlet 17, and below this spray-pan and below the run 14 is a drip pan 18 having an outlet 19 leading to the spray-pan 20 arranged above the run 11; and above the run 13 is a spray pan 21 fed through an inlet pipe 22, and below the run

12 is a drip pan 23 which discharges into the casing which is provided with an outlet 24. Connected to the chain at intervals are a series of buckets 25. These buckets are connected with a chain through trunnions 26 which extend into blocks 27 secured between the links 28 and 29 of the chain, which chain also includes a series of rollers 30 which run upon suitable tracks 31 and 32 arranged in the casing along each of the runs. These buckets are rectangular and have flat bottoms which are made up of two layers 33, 34, of wire mesh or gauze with a strip 35 of fabric between them. This bottom rests upon a flange 36 extending around the bottom of the bucket and may be held in place by angle irons 37 so that the bottoms may be readily removed. On each side near the upper edge are rollers 38, 39, and on each side and at the center near the bottom are rollers 40 for the purpose as will hereinafter appear. Beyond the end of the drip pan 18 I arrange a platform 41 which is bent to form a shoulder 42 for the purpose as will hereinafter appear, and the platform is inclosed in a discharge hopper 43 which opens into a conveyer 44 through which material is discharged. Above the platform 41 perforated steam pipes 45 are arranged having an inlet 46 and an outlet 47. The casing is also provided with a vapor outlet 48 and with a manhole 49, and in the bottom of the casing are perforated steam pipes 50 with an inlet 51 at one end. The buckets successively pass beneath the receiving hopper 3 and trip the lever 52 to open the gate 4 so that the buckets are successively filled. These buckets then travel downward on the run 10 maintaining a vertical position because they are hung from the center of the top, and then they pass longitudinally along the run 11; and as the buckets pass beneath the spray-pan 20 the material in the buckets is washed by naphtha or other solvent which may be used. The buckets continue on the runs 12 and 13 during the passage of which they are washed by material from the spray-pan 21. The solvent after passing through the buckets on the runs 12 and 13 is caught by the drip pan 23 and discharged into the bottom of the casing. As the buckets enter the run 14 they pass beneath the spray pan 16 and the material in the buckets receives the final wash. After passing through the buckets the material is caught by the drip-pan 18 and is carried to supply the spray pan 20.

As the buckets continue the wheel 40 strikes the shoulder 42 of the platform 41 and the buckets are inverted so as to discharge the contents into the hopper 43 from which it is carried off by the conveyer 44. In this inverted position the buckets are supported by the platform 41, and while in this inverted position steam is admitted to the pipes 45 and forced through the buckets, thoroughly cleaning the perforated bottoms. The buckets then run off the platform, the outer end of which is curved downward and the buckets turned open end upward in position to again pass beneath the receiving hopper 3. It will be noted that as the buckets pass along the last run the material is washed with fresh solvent, and this solvent after passing through the buckets is led to the spraying pan over the first run 11, as the amount of grease picked up by the last wash is so small that the solvent may be used with good effect for the first wash. The solvent as it flows into the bottom of the casing is drawn off through the outlet 24 and conducted to a separating tank, where the grease and naphtha are separated. For the purpose of steaming out the casing steam is admitted to the pipes 50 through the inlet 51 and the chamber 30 filled with steam which may be allowed to pass through the vapor outlet 48 to a condensing tank where the naphtha is reclaimed. The shaft 53 on which the sprockets 8 are mounted is adjustable in the bearings 54 so that proper tension on the chain may be maintained. It will thus be seen that the device is practically automatic and that the material is thoroughly washed before it is discharged. It may be stated that about fifteen minutes is required for one bucket to make its complete excursion, and the buckets are so spaced that sufficient time is allowed for discharging and steaming out.

I claim:—

1. A percolator comprising a series of sprocket wheels with a chain running over them, tracks along the horizontal path of the chain, buckets having perforated bottoms connected with the chain, means for supporting the buckets as they pass along the runs, and means for spraying the material carried in the buckets.

2. A percolator comprising a series of sprocket wheels with a chain running over them, tracks along the horizontal path of the chain, buckets having perforated bottoms connected with the chain, means for supporting the buckets and spraying the contents therein as they pass along the runs, a discharge hopper, and means for inverting the buckets over said hopper.

3. A percolator comprising a chain arranged to move in horizontal paths, tracks along the horizontal paths of the chain, buckets having perforated bottoms connected with the chain, means for spraying the contents of the buckets in their horizontal movement, a discharge hopper, a platform in said hopper, and a shoulder at one end of said platform adapted to trip said buckets whereby they are inverted over said hopper.

4. A percolator comprising a casing, a receiving hopper arranged in the top thereof, and a gate for the lower end of said hopper, a series of sprocket chains arranged in said casing, chain passing over said sprocket wheels, tracks for supporting the runs of the said chain, buckets having perforated bottoms connected at intervals to said chain, means for spraying the material in the buckets as they pass along the runs, a discharge hopper, and means for inverting the buckets over said hopper.

5. A percolator comprising a casing, a series of sprockets in said casing, a chain running over said sprockets, buckets having perforated bottoms secured to and carried by said chain, means for spraying the contents of said buckets as they move horizontally, a discharge hopper, means for inverting the buckets in said hopper, and steam pipes opening into said hopper whereby the buckets when inverted may be cleaned by the pressure of steam.

6. A percolator comprising a casing, a series of sprockets in said casing, a chain running over said sprockets, buckets having perforated bottoms secured to and carried by said chain, a discharge hopper, means for inverting the buckets in said hopper, and perforated steam pipes in the bottom of the casing whereby the vapors of the solvent remaining in the casing may be steamed out.

7. A percolator comprising a casing, a series of sprocket wheels, a chain running over them and forming a series of runs one above the other, tracks arranged along the horizontal path of the chain, buckets having perforated bottoms connected with the chain, perforated spray pans arranged above the horizontal runs of the chain whereby the contents of the buckets are sprayed as they pass along the runs, and a discharge hopper into which the contents of the buckets may be emptied.

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

JOHN B. LIVINGSTON.

Witnesses:

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