

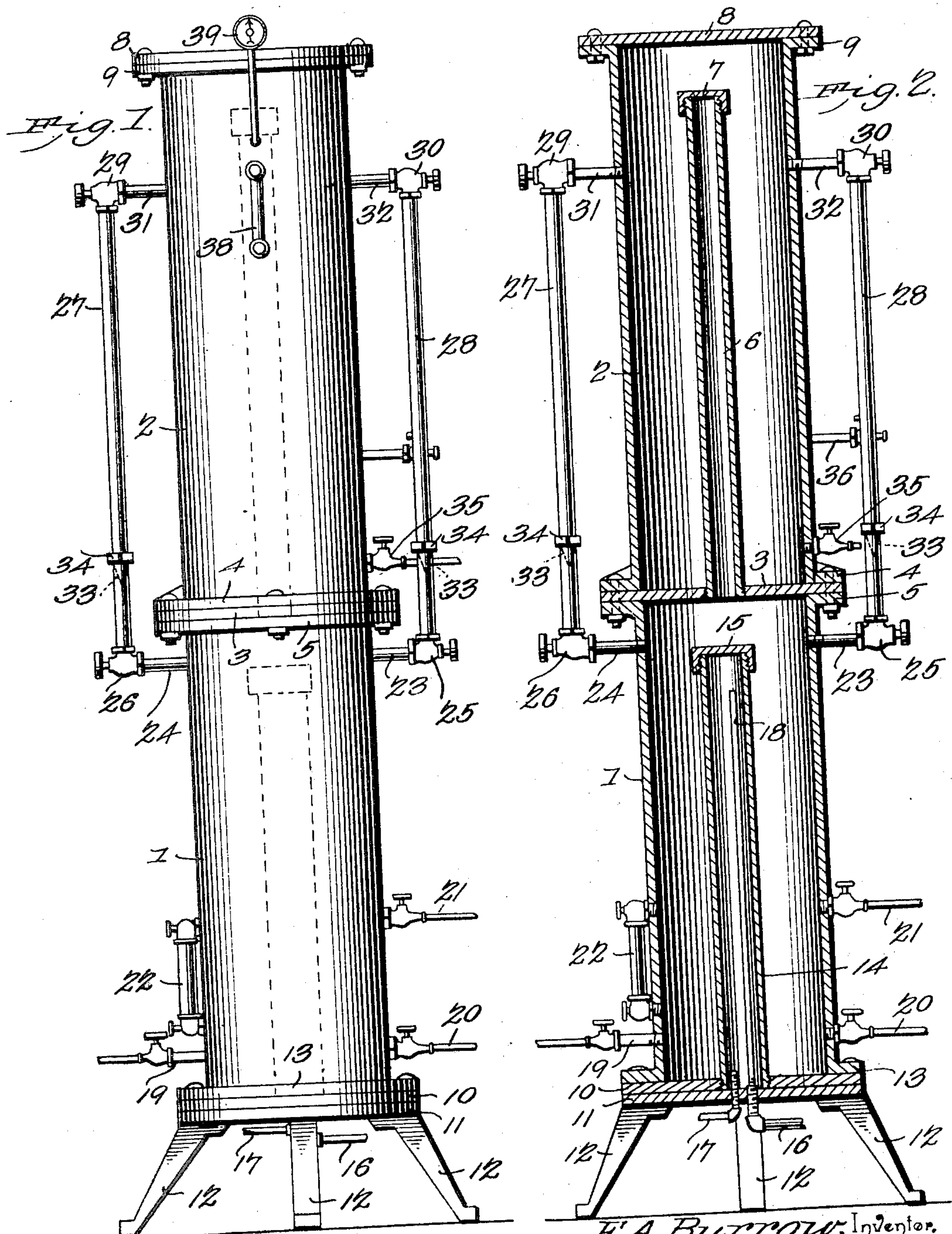
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Patented Aug. 26, 1902.

E. A. BURROW.
OIL HEATER, STRAINER, AND SEPARATOR.

(Application filed Feb. 21, 1902.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

EDGAR A. BURROW, OF HICO, TEXAS.

OIL HEATER, STRAINER, AND SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 707,760, dated August 26, 1902.

Application filed February 21, 1902. Serial No. 95,129. (No model.)

To all whom it may concern:

Be it known that I, EDGAR A. BURROW, a citizen of the United States, residing at Hico, in the county of Hamilton and State of Texas, have invented a new and useful Oil Heater, Strainer, and Separator, of which the following is a specification.

This invention relates generally to apparatus for purifying oil for fuel purposes, and more particularly to an apparatus of this character to be used in connection with a fuel-oil-burning plant.

The object of the invention is to present an apparatus of the character specified which will in a simple, practical, rapid, and thoroughly-feasible manner eliminate from the oil all water, grit, and other foreign substance and at the same time heat the same to a temperature best adapted for use.

With these 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 an oil-purifying apparatus, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like numerals of reference indicate corresponding parts, there is illustrated one form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the elements therein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the spirit thereof, and in the drawings—

Figure 1 is a view in elevation of an apparatus embodying the present invention. Fig. 2 is a view in vertical longitudinal section.

Referring to the drawings, and more particularly to Fig. 2 thereof, 1 designates a receiving or purifying chamber, and 2 a storage or supply chamber. The two chambers are separated by a plate 3, held in place by bolts passing through flanges 4 and 5, formed, respectively, at the bottom of the chamber 2 and top of the chamber 3, the plate being provided with a centrally-disposed threaded opening, in which is screwed the lower end of a section of pipe 6, constituting an air-chamber, the upper end of which extends to

a point near the top of the chamber 2 and is hermetically closed by a cap 7. The top of the chamber 2 is closed by a plate 8, bolted to a flange 9 at the upper end of the said chamber.

The bottom of the chamber 1 is closed by a plate 10, which, together with a plate 11, carrying the supporting-legs 12, is bolted to a flange 13 at the lower end of the chamber 1, there being suitable packing interposed between the flanges and the plates throughout the apparatus in order to present oil and steam tight joints. The plate 10 is provided with a centrally-arranged threaded opening, in which is screwed the lower end of a section of pipe 14, constituting a heating-chamber, the upper end of which extends to a point near the top of the chamber 1 and is hermetically closed by a cap 15.

Tapped into the plate 11 and opening into the chamber 14 are two pipes 16 and 17, the pipe 16 having connected with it a section of pipe 18, which extends to a point near the top of the heating-chamber, the pipe 16 being connected with a supply of steam, as with the exhaust of the steam-pump that supplies oil to the apparatus or with the boiler thereof, while the pipe 17, which projects slightly above the plate 11, constitutes a drain-pipe for carrying off the water of condensation.

At a point near the lower end of the chamber 1 there is connected a valve-bearing pipe 19, which connects with a supply of water, as with a water-main or with a feed-pump, to supply the requisite water to the apparatus as needed. Two other valve-bearing pipes 20 and 21 are also connected with the chamber 1 near its bottom, the pipe 20 being a blow-off and the pipe 21 being the oil-supply pipe leading from the force-pump. A suitable gage 22 is also associated with the said chamber to enable the operator to ascertain the height of the oil therein. Connected with the upper portion of the chamber 1 and on each side thereof is a pipe 23 and 24, respectively, each carrying on its outer end a valve 25 and 26, respectively, and connecting with each of these valves is a pipe 27 and 28, respectively connected at their upper ends to valves 29 and 30, carried by pipes 31 and 32, entering the chamber 2 near its top, each of

the pipes 27 and 28 being provided with a cone strainer 33, (indicated by dotted lines in Figs. 1 and 2,) which operate to prevent entrance into the supply-chamber of any foreign matter that might be carried up in the oil from the receiving-chamber. In operation but one of the pipes 27 or 28, which constitute oil-conveying pipes, will be employed, one being at all times cut out to constitute a reserve in case the strainer in the other pipe should become clogged, and when this happens, say, in the case of the conveying-pipe 28 the valves 25 and 30 will be closed and the valves 26 and 29 opened and the strainer in the pipe 28 will be removed by unscrewing a coupling 34, as will be readily understood. The chamber 2 has connected with it near its bottom a valved drain-pipe 35, by which the chamber 2 may be emptied when desired, and also a valved feed-pipe 36, which leads to the burners to be supplied by the apparatus. The chamber 2 has connected with it a gage 38, as usual, and the air-chamber has connected with it a pressure-gage 39, as shown in Fig. 1.

The operation of the device is as follows: Water in a suitable quantity is supplied through the pipe 19 to the chamber 1, after which its valve is closed. Steam is then turned into the heating-chamber, and oil from a suitable pump is supplied through the pipe 21 to the chamber and as it enters therein is heated by the contained water, causing it to deposit any grit or any other heavy foreign substance and also any contained water. As the oil rises to the top of the chamber 1 the air therein is displaced and forced into the air-chamber 6, and as the pumping operation continues the purified oil passes, say, through the pipes 23, 28, and 32 into the chamber 2, where it is stored. There will of course be a column of oil entering the air-chamber 6, and this will operate to compress the contained air, which latter will operate the needle of the pressure-gage and will indicate to the operator when the proper pressure is secured for feeding the oil out of the pipe 36 to the burners, and when this pressure is secured it may be kept constant by regulating the pump-governor to hold the pressure at the point secured. Should the strainer in the pipe 28 become clogged, this may be readily

cut out of service in the manner before described and the pipe 27 cut into service.

The apparatus herein described is composed of but few number of parts, and these are so associated and operate in such manner as to reduce liability of derangement or damage in use to a minimum, and by reason of the manner in which the parts are assembled the apparatus may be readily taken apart for purposes of packing and shipment.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An apparatus of the character specified, comprising a receiving or purifying chamber, heating means arranged therein, a storage or supply chamber, a pressure-chamber arranged in the last-named chamber and communicating with the receiving-chamber, connections between the receiving and storage chambers, and pressure-indicating means connected with the pressure-chamber.

2. An apparatus of the character specified, comprising a purifying-chamber, heating means arranged therein, means for supplying oil and water to the purifying-chamber, a storage-chamber, a pressure-chamber arranged in the last-named chamber and communicating with the purifying-chamber, and a pipe including straining means connecting the purifying and storage chambers.

3. An apparatus of the character specified comprising a purifying-chamber having a bottom provided with an opening, a heating-chamber secured in the opening and having its upper end closed, a closed-top storage-chamber supported by the purifying-chamber and separated therefrom by a plate having an opening, a pressure-chamber having its lower end secured in the opening and communicating with the purifying-chamber and its upper end closed, connections between the purifying and storage chambers, and a pressure-gage operatively connected with the pressure-chamber.

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

EDGAR A. BURROW.

Witnesses:

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