March 10, 1925. 1,529,562

M. E. VEZIE

SUPERHEATING OIL BURNER

Filed Oct. 31, 1923

Fig. 1.

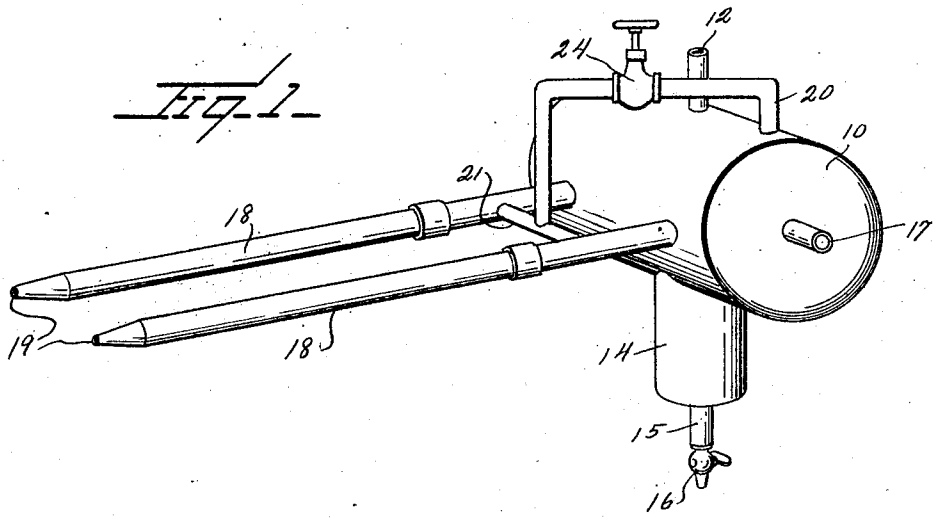


Fig. 2.

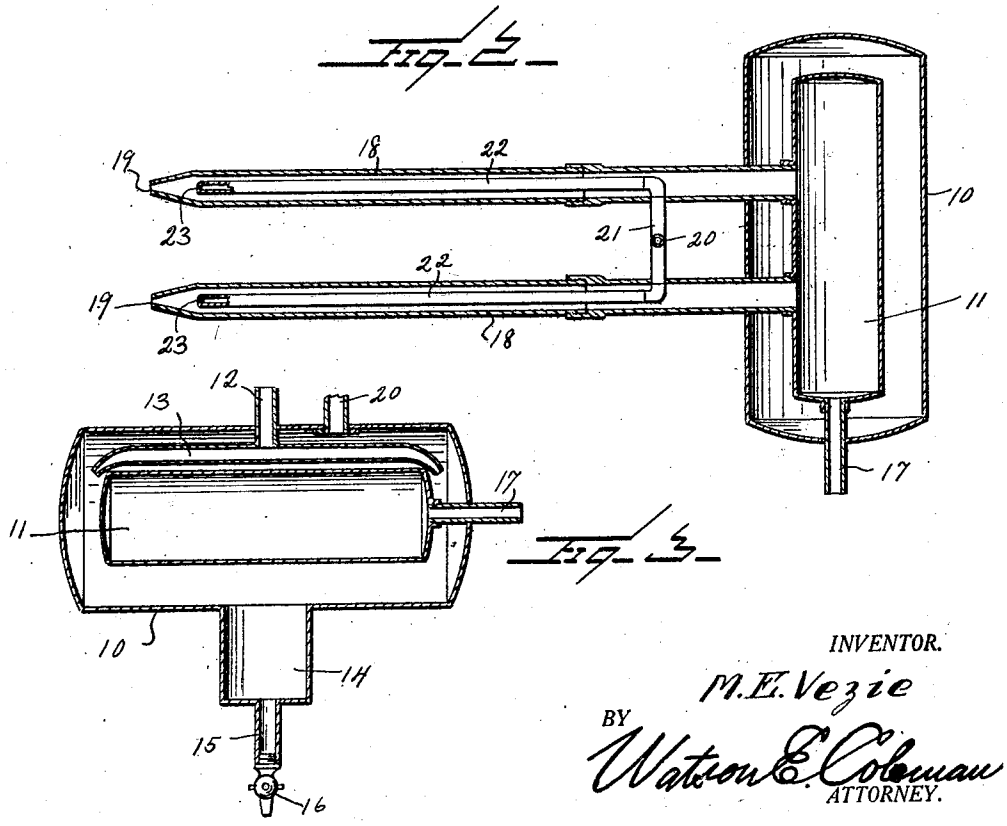


Fig. 3.

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UNITED STATES PATENT OFFICE.

MELBOURNE E. VEZIE, OF CUSHING, OKLAHOMA.

SUPERHEATING-OIL BURNER.

Application filed October 31, 1923. Serial No. 671,970.

To all whom it may concern:

Be it known that I, MELBOURNE E. VEZIE, a citizen of the United States, residing at Cushing, in the county of Payne and State of Oklahoma, have invented certain new and useful Improvements in Superheating-Oil Burners, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to oil burners for furnaces particularly designed for boilers and stills, and the general object of the invention is to provide an oil burner of such construction that the oil is superheated therein and dry steam is injected into the oil adjacent the point of exit of the flame.

A further object is to provide a construction of this character wherein steam is used for preheating the oil and the dry steam used for superheating the oil and for injection into the oil stream.

A still further object is to provide a construction of this character including a steam chamber enclosing an oil tank, this steam chamber being provided with a sump, as it may be called, or well wherein water of condensation may gather and from which this water may be taken off from time to time as desired.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a perspective view of an oil burner constructed in accordance with my invention;

Figure 2 is a horizontal section through the burner;

Figure 3 is a vertical section through the preheating chamber and steam chamber;

Referring to these drawings, 10 designates a steam chamber containing or enclosing an oil tank or superheating tank 11 which is disposed approximately concentrically within the steam chamber. Entering one wall of the steam chamber as, for instance, the top thereof is a steam pipe 12 which, within the steam chamber, is branched, as at 13, and extended to the ends of the steam chamber and is there provided with downwardly extending outlets. The lower portion of the steam chamber at its middle is formed to provide a water collecting well or sump 14 having a pipe 15 and valve 16 whereby the water collected in this well may be withdrawn from time to time.

Extending into the oil tank 11 through one end wall of the chamber 10 is an oil supply pipe 17, and extending from the chamber 11 and through the walls of the chamber 10 are two burner pipes 18. These extend directly outward in a horizontal plane from the heating chamber and are tapered at their extremities and formed with the outlet openings 19. Extending from the top of the steam chamber 10 is a steam pipe 20 which extends horizontally outward and then downward and is connected to a cross pipe 21 which enters the sides of the burner tubes 18 and communicates with longitudinally extending pipe sections 22 extending longitudinally of and concentrically within the burner pipes 18 and terminating short of the openings 19. These burner pipes at their extremities are perforated, as at 23. The pipe 20 preferably in its horizontal portion is provided with a valve 24.

The operation of this device will be obvious from what has gone before. The preheating tank 11 is, of course, filled with oil or in other words is connected to a source of oil under pressure by the pipe 17. This oil passes into the heating tank and then out through the pipes 18 and is discharged at the nozzles 19. The oil is preheated by the steam within the steam chamber 10 which entirely surrounds the tank 11. The steam issuing from the branches 13 circulates around through the chamber 10 and the condensate passes down into the well 14, while the dry steam passes out through the pipe lengths 20 and 21 into the longitudinally extending pipes 22 within the burners 18 and acts to very highly heat the oil in these burner pipes 18 so that the oil is superheated just before reaching the nozzles 19. The steam in the pipes 22 discharges through the perforations 23 into the column of oil and the mixed steam and oil are forced out by the pressure of the steam through the nozzles 19 in the form of jets. It is obvious that the pressure of the steam from the perforations 23 or pipes 22 will cause a suction which will draw the oil through the pipes 18 and continually draw oil into the tank 11.

By the means which I have described, I secure a high pressure on the jet issuing from the burner nozzles, I highly heat the

oil before its issuance and preheat it within the steam chamber itself, and I secure a separation of the wet steam from the dry steam so that only dry steam is ejected through the nozzles.

A gas burner of the character described is very simple, easily managed, and has been found very effective in actual practice.

I claim:—

1. An oil burner of the character described comprising an oil tank connected to a source of oil, a relatively small burner pipe extending from the oil pipe and terminating in a discharge nozzle, a steam chamber surrounding the oil tank and connected to a source of steam, a steam pipe leading from the upper portion of the steam chamber and extending into the burner pipe and extending longitudinally thereof to a point adjacent the nozzle thereof and at this point discharging into the burner pipe.

2. An oil burner of the character described comprising an oil tank, a relatively small pipe connecting the oil tank to a source of oil, a relatively small burner pipe extending from the oil tank and terminating in a nozzle, a steam chamber surrounding the oil tank, a steam pipe entering the upper portion of the steam chamber and having laterally extending branches discharging thereinto, and a steam pipe extending from the top of the steam chamber and extending into the burner pipe and then extending longitudinally thereof and terminating at a point adjacent the discharge nozzle of the burner pipe and discharging thereinto.

3. An oil burner comprising an oil tank connected to a source of oil, a pair of burner pipes extending therefrom and terminating in nozzles, a steam chamber surrounding the oil tank and through which said burner pipes pass, the steam chamber having a water collecting well in its bottom, and a draw-off pipe leading therefrom, a steam pipe entering the top of the steam chamber and having branches discharging thereinto, and a pipe leading from the top of the steam chamber and having branches extending into the burner pipes, said branches extending longitudinally along the burner pipes and discharging at a point adjacent the nozzles of the burner pipes.

In testimony whereof I hereunto affix my signature.

MELBOURNE E. VEZIE.