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1,571,237

E. B. DILL

FUEL OIL VAPORIZER

Filed April 19, 1924

Fig. 1.

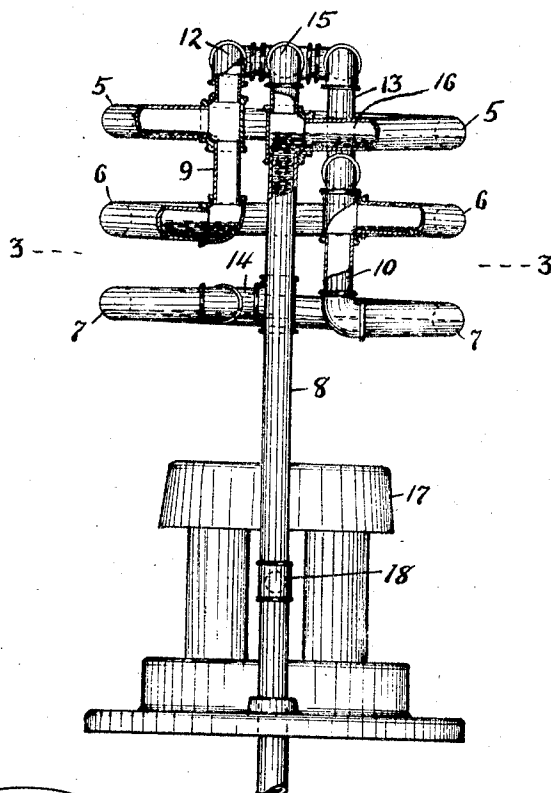


Fig. 2.

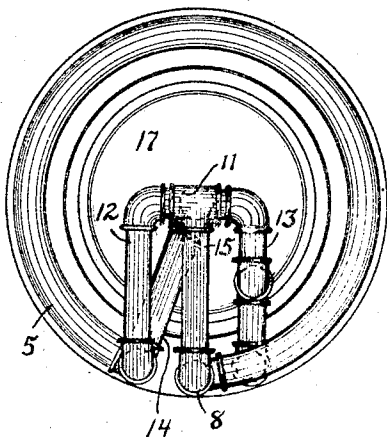
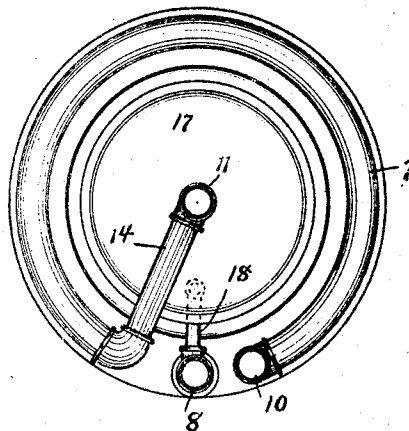


Fig. 3.



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FUEL-OIL VAPORIZER.

Application filed April 19, 1924. Serial No. 707,592.

To all whom it may concern:

Be it known that I, ERRETT B. DILL, a citizen of the United States of America, and resident of Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Fuel-Oil Vaporizers, of which the following is a specification.

This invention relates to improvements in fuel oil vaporizers, and the object thereof is to provide in a vaporizer of the type in which oil is fed to a burner through a series of pipes that are heated by the flame of the burner so that the oil becomes vaporized prior to reaching the burner, a pipe construction wherein the liquid oil will flow gravitally through the various pipes without completely filling the pipes so that space is left within said pipes for the passage of oil vapor, as it is generated, to the burner. Another object is to provide a vaporizer for a burner so constructed that the vapor from the liquid oil is permitted to pass from the liquid as generated without mingling therewith.

These objects are accomplished by the construction illustrated in the accompanying drawings, in which:—

Fig. 1 is an elevation of a vaporizer embodying the invention, in connection with an ordinary burner, there being parts broken away;

Fig. 2 is a plan view of the same; and

Fig. 3 is a transverse section of Fig. 1 on the line 3—3 thereof.

The characters appearing in the description refer to parts shown in the drawings and designated thereon by corresponding characters.

The invention comprises a vaporizer formed of a series of inclined pipe coils 5, 6 and 7 arranged in vertical order. The upper coil 5 is connected at its lowermost end with an upflow supply pipe 8, while its opposite and higher end is connected with the lower end of the pipe coil 6 by means of an overflow pipe connection 9. The high end of the coil 6 is likewise connected with the low end of the coil 7 by means of an overflow pipe connection 10. The high end of the coil 7 is connected with the downflow feed pipe 11 through which the vaporized oil is supplied to the burner. The upper end of the coil 5 has a pipe connection 12 with the downflow feed pipe 11, and the upper end of the coil 6 has a pipe connection 13 also with the downflow feed pipe 11. The

upper end of the coil 7 has connection with the feed pipe 11 by a pipe 14, and the upper end of the upflow supply pipe 8 has connection with the downflow feed pipe 11 by a pipe 15. By this arrangement of the coils and the various pipe connections between the coils and the feed pipe 11, both ends of each of said coils have communication with the said downward flow feed pipe.

In arranging the coils in position it is essential that the high end of each coil shall be only sufficiently elevated relative to its opposite end that the liquid fuel will overflow from the high end without the low end of the pipe becoming completely filled with the liquid, in order that an open space 16 above the liquid fuel in each coil will be maintained throughout the length of the coil.

The downflow pipe 11 extends into a burner 17 which may be of any suitable type, and a pipe 18 leading from the supply pipe 8 is provided for supplying liquid fuel to the burner for maintaining a pilot flame therein in the customary manner.

In the operation of the device the supply pipe 8 is connected with a suitable source of fuel oil such as a storage tank (not shown) and so arranged that the oil will be supplied with sufficient head as to rise in the supply pipe 8 and flow through the top coil 5 and overflow from its highest end. Such oil as overflows from the top coil passes through the connection 9 into the coil 6 at the lower end thereof and partially fills said coil and overflows from its high end through the connection 10 into the succeeding coil 7 which also becomes partially filled and overflows at its upper end through the connection 14 into the feed pipe through which it passes into the burner.

A flame in the burner is initially established in the usual manner, and the flame causes the coils to become heated so that the oil with which the coils are partially, but not completely filled, becomes more or less vaporized and circulates above the level of the liquid oil in the coils and passes from both ends of the coils through the corresponding connections into the downflow feed pipe and is therein directed to the burner. As the oil flows through the coils successively from the top coil to the lowermost coil, and becomes more or less vaporized therein during its passage, the liquid in transit is depleted and little, if any, of the oil in a liquid state

remains to overflow from the lowermost coil. But, such of the liquid oil as reaches the overflow from the lowermost coil passes through the connection 14 into the feed pipe 11 and is therein directed with the vaporized oil to the burner where it is consumed.

By this construction and operation the vaporized oil flows freely from the liquid oil without protracted percolation there-through and passes to the burner more thoroughly vaporized and in a more perfectly combustible state than in the usual construction.

What I claim is:—

1. In combination with a fuel oil burner, a downflow feed pipe for the burner, a group of ascending pipe coils arranged in a vertical series, the highest end of each of the uppermost coils having an overflow connection with the lowest end of the next succeeding lower coil; an upflow supply pipe having connection with the lowest end of the uppermost coil for supplying fuel oil thereto; and an overflow connection between the highest end of the lowermost coil and the downflow feed pipe.

2. In combination with a fuel oil burner having a downflow feed pipe therefor, a

group of pipe coils horizontally disposed upon a vertical axis in successive order; an upflow supply pipe having connection with the uppermost of said coils; and overflow connection between the lowermost of said coils and the feed pipe; and overflow connection between each of the uppermost coils and the next succeeding lower coil; and means affording passageways for vaporized oil between the tops of each coil and the downflow feed pipe.

3. In combination with a fuel oil burner having a feed pipe therefor, a series of inclined pipes arranged in vertical succession; an oil supply pipe connected with the lowest end of the uppermost pipe; and a connection between each of the uppermost pipes and the next succeeding lower pipe and between the highest end of the lowermost pipe and the feed pipe, the ends of said pipes being disposed one above the other so that the oil supplied through the supply pipe will flow through said pipes in succession partially filling same while a space above the level of oil therein is maintained throughout the length of each pipe.

In testimony whereof I affix my signature.

ERRETT B. DILL.