(No Model.)

R. L. UNDERWOOD.

FUEL OIL BURNER.

No. 524,289. Patented Aug. 7, 1894.

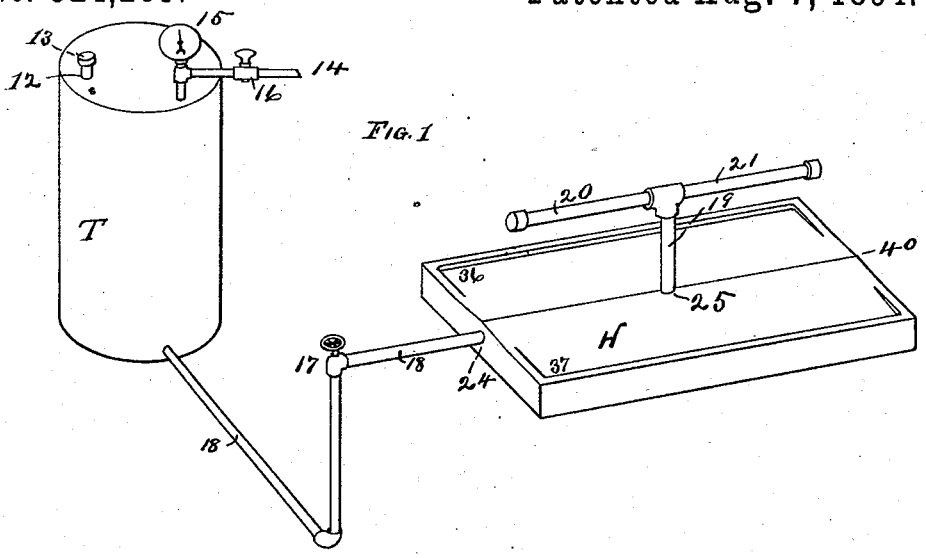

FIG. 1

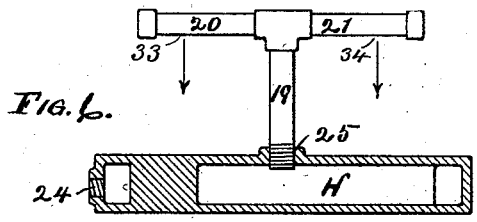

FIG. 6.

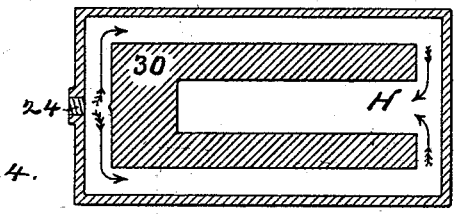

FIG. 4.

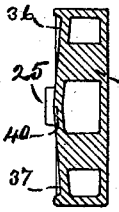

FIG. 5.

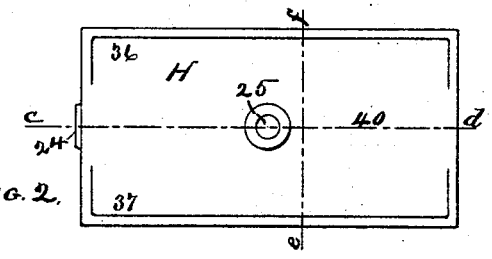

FIG. 2.

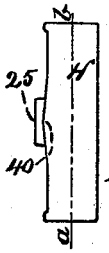

FIG. 3

WITNESSES.

Wm. J. Robinson

Anna M. Fish

INVENTOR

R. L. Underwood

By Jno. D. Riggs. Atty.

UNITED STATES PATENT OFFICE.

ROBERT L. UNDERWOOD, OF TOLEDO, OHIO, ASSIGNOR TO AMOS H. BOARDMAN, OF SAME PLACE.

FUEL-OIL BURNER.

SPECIFICATION forming part of Letters Patent No. 524,289, dated August 7, 1894.

Application filed September 20, 1893. Serial No. 486,048. (No model.)

To all whom it may concern:

Be it known that I, ROBERT L. UNDERWOOD, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented a new and useful Improvement in Fuel-Oil Burners, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to apparatus for burning cheap mineral oil in stoves and furnaces for heating purposes, and consists of a peculiarly constructed heater for heating the oil and converting it into a gas or vapor in connection with other parts as more fully pointed out hereinafter.

In the accompanying drawings Figure 1 is a perspective view of my burner connected to a supply tank. Fig. 2 is a plan view of the heater. Fig. 3 is an end elevation of the heater. Fig. 4 is a sectional plan view at *a b* Fig. 3 of the heater. Fig. 5 is a sectional elevation at the line *e f* Fig. 2 of the heater. Fig. 6 is a longitudinal sectional elevation at *c d* of the heater and jet pipes.

Similar letters and numerals of reference refer to similar parts throughout the several views.

A closed tank T contains the supply of oil and is made large enough to hold a barrel or more of oil. The tank T may be located on the same floor as the stove in which the burner is used or below it.

An opening 12 in the top of the tank is used for filling the tank and is closed by the threaded plug 13. An air pipe 14 admits air under pressure from an ordinary hand pump. The air is pumped in above the oil to create a sufficient pressure to drive the oil through the pipes and heater. A pressure gage 15 indicates the air pressure at any time. A pipe 18 conveys the oil from the tank T to the heater H and has a valve 17 to regulate the flow of oil for a large or small fire. The heater H is a hollow casting having an opening 24 at one end to receive the pipe 18, and an opening 25 in the top to receive burner pipe 19. Within the heater or retort there is an essentially open ended rectangular partition, which divides the interior of the heater or retort into a series of passages, so that when the oil enters at 24, it is compelled to pass down the sides of the heater and then back again to the center before it passes out through the pipe 19. In the upper face of the heater or retort are produced two depressions 36 and 37 upon opposite sides of the central line, for the purpose of collecting the oil for an initial lighting.

A pipe 19 conveys the gas and vapor from the heater H to the branch pipes 20 and 21 which have each a small hole on the lower side 33 and 34 through which the gas and vapor escape in currents which strike the central apex 40 of the heater H and are deflected in each direction and made to fill the combustion chamber of the stove or furnace.

In operation the heater H is placed in the fire box of a stove or furnace and connected to the tank T which may be in an adjoining room or in the basement below. An amount of air is pumped into the tank T above the oil sufficient to create a pressure of about fifteen pounds per square inch and the valve 16 is closed, the valve 17 is then opened and a small amount of oil allowed to flow through into the basins 36 and 37 on the heater H. This oil is lighted, and as it burns it heats the heater H until it causes an oil vapor to issue from the openings 33 and 34.

The heater H is made sufficiently large so that the flame in contact with its upper surface will generate gas or vapor as fast as it can issue through the openings 33 and 34 thus producing the gas as it is used.

This burner is meant to be used to burn oil that is free from sediment, but in case there should be a small amount of sediment in the oil or a slight deposit of carbon as the oil is vaporized the opening in the heater is so large and consequently the flow of oil and vapor so slow, that any sediment may settle to the bottom and remain there for a time or until cleaned out.

I have shown my burner with two branch pipes 20 and 21 each having a small hole in the lower side from which issue the jets of gas. But I do not wish to confine myself to two branch pipes and two jets for the device may be used with more or less without essentially changing the mode of working.

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

In a fuel oil burner, a heater or retort having depressions in its upper face, supply and burner pipes secured in the same, said burner pipe extending above the heater and branched horizontally in opposite directions, said branch pipes having apertures upon the under side of the same.

In testimony that I claim the foregoing I have hereunto affixed my signature, this 16th day of March, 1893, in the presence of two subscribing witnesses.

R. L. UNDERWOOD.

Witnesses:
JNO. D. RIGGS,
J. P. CUTTING.