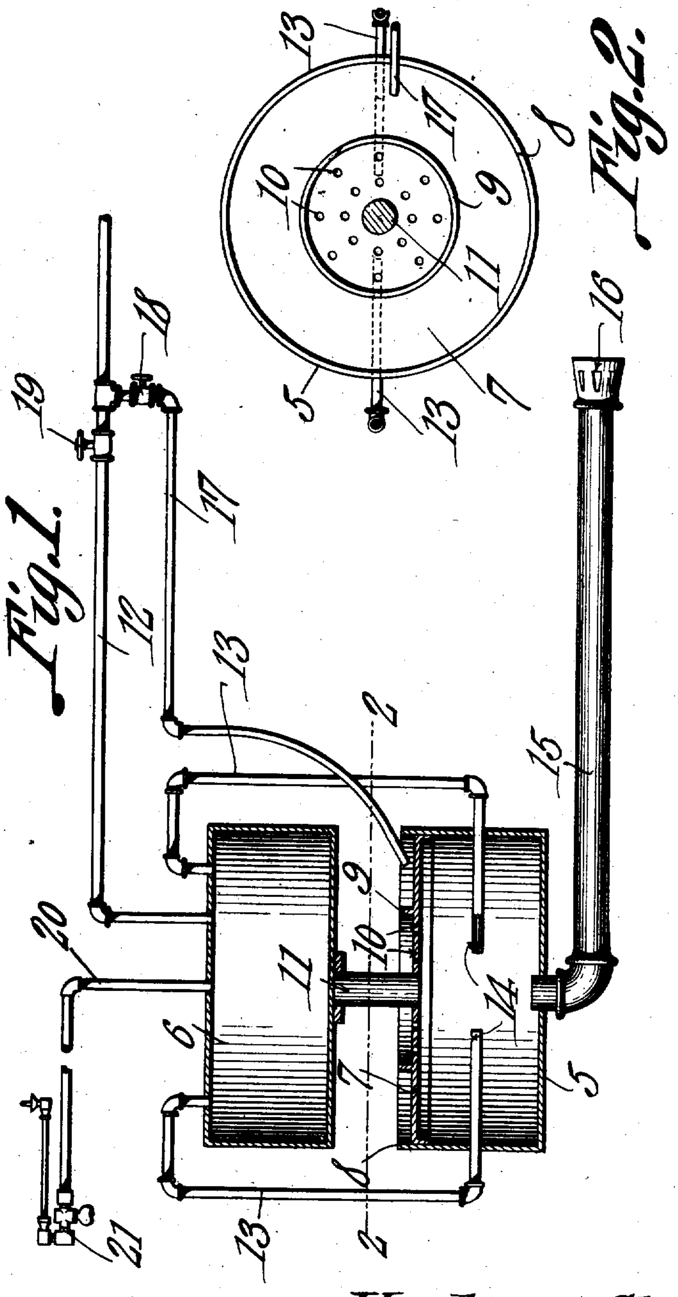
H. SHAPEL.

LIQUID FUEL BURNER.

APPLICATION FILED JAN. 6, 1910.

972,931. Patented Oct. 18, 1910.



Inventor

Hooker Shapel.

By C. A. Snow & Co.

Attorneys

Witnesses

E. J. Stewart

M. A. Schmid

UNITED STATES PATENT OFFICE.

HOOKER SHAPEL, OF IOLA, KANSAS.

LIQUID-FUEL BURNER.

972,931. Specification of Letters Patent. Patented Oct. 18, 1910.

Application filed January 6, 1910. Serial No. 536,645.

To all whom it may concern:

Be it known that I, HOOKER SHAPEL, a citizen of the United States, residing at Iola, in the county of Allen and State of Kansas, have invented a new and useful Liquid-Fuel Burner, of which the following is a specification.

This inventon relates to liquid fuel burners of the retort type, and more particularly a burner of this type in which the retort overlies the gas or vapor flame; and it is the object of the present invention to provide a burner of the kind stated which is very simple in structure, and highly efficient in operation.

The invention also has for its object to provide improved means for starting the retort before the burner proper is started, and also to provide a retort which is so constructed that it can be operated with a small fire.

Another object of the invention is to provide a burner embodying certain novel structural details to be hereinafter described and claimed.

In order that the invention may be better understood, reference is had to the accompanying drawing, in which—

Figure 1 is a vertical sectional view of the burner and retort. Fig. 2 is a horizontal section on the line 2—2 of Fig. 1.

The burner which is the subject of the present invention is designed for heating and cooking stoves.

The burner proper and the retort comprise chambers 5 and 6, respectively, the retort overlying the burner, and these parts being suitably shaped to fit the kind of stove to which they are to be applied. For heating stoves, the two chambers will generally be cylindrical in form, and for cooking stoves they may be made oblong, to conform to the outline of the fire pot. It may be here stated that in use, the burner will be mounted in the fire pot of the stove, it being supported therein in any suitable manner, as, for instance, on the grate.

The top 7 of the chamber 5 is formed with an upstanding marginal flange 8, and from said top also rises an upstanding flange 9, these two flanges being concentrically arranged, and the flange 8 inclosing the flange 9. The flanges, and the top of the chamber therebetween form an annular pan or trough which is for a purpose to be presently described. Within that portion of the top 7 of the chamber 5, which is inclosed by the flange 9, are a plurality of burner openings 10 through which the gas or vapor escapes.

Secured to, and rising centrally from the top 7 of the burner chamber, is a post 11 on which the retort chamber 6 is supported a suitable distance above the burner chamber. The retort chamber 6 is entered, preferably, although not necessarily, through the top, by an oil supply pipe 12, and from said chamber, pipes 13 lead to, and enter the burner chamber 5, the last-mentioned pipes being provided for conducting the gas or vapor generated in the retort chamber to the burner chamber. The ends of the pipes 13, within the burner chamber 5, are closed, and provided with top openings 14 through which the gas or vapor escapes into the chamber. The oil supply pipe 12 leads to a storage tank which may be located at any suitable place inside or out of the house, said storage tank to have sufficient elevation to give gravity pressure to the oil.

The bottom of the burner chamber 5 is entered by an air supply pipe 15 which extends to the outside of the stove and has its inlet end provided with a suitable valve 16, for controlling the amount of air entering the burner chamber.

To the pipe 12 is connected a branch pipe 17 said branch pipe leading to, and having its discharge end so located as to discharge into the pan formed on the top of the burner chamber 5. In the branch pipe is a valve 18, and between the junction of the branch pipe and the pipe 12, and the retort chamber 6, is a valve 19. The retort chamber 6 may also be connected by a pipe 20 to one or more illuminating burners 21.

To operate the burner, the valve 19 is closed, and the valve 18 opened to permit the oil to run into the pan on top of the burner chamber 5. When a sufficient amount of oil has run into the pan, the valve 18 is closed, and the oil in the pan is ignited. As the pan is located directly under the retort chamber 6, the latter is rapidly heated, after which the valve 19 is opened, and the oil is permitted to enter the retort chamber, in which it is transformed into a gas or vapor which flows through the pipes 13 into the burner chamber 5. This gas or vapor is mixed with air entering the burner chamber through the pipe 15, and the highly inflammable mixture thus produced issues

from the openings 10, at which it burns. The flame thus produced will impinge against the bottom of the retort chamber 6 and also play around the same, thus heating the same sufficiently to vaporize the incoming supply of oil.

The burner herein described is simple in structure, and can be readily applied to any ordinary stove. The amount of gas or vapor generated is readily controlled by the valve 19, and as the retort presents a large heating surface to the burner, a small fire may be maintained without stoppage of the operation of the retort.

What is claimed is:

1. In a liquid fuel burner, a chamber having burner openings in its top, and a pan on said top surrounding the burner openings, a retort overlying the chamber, a fuel supply pipe to the retort, a vapor delivery pipe from the retort to the chamber, an air supply pipe to the chamber, and a fuel supply pipe discharging into the pan.

2. In a liquid fuel burner, a chamber having burner openings in its top, spaced and concentric annular flanges rising from the top of said chamber, the inner flange surrounding the burner openings, a retort overlying the chamber, a fuel supply pipe to the retort, a vapor delivery pipe from the retort to the chamber, an air supply pipe to the chamber, and a fuel supply pipe discharging on the top of the chamber between the flanges.

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

HOOKER SHAPEL.

Witnesses:
C. M. Cole,
E. S. Slough.