

1,340,803.

E. H. TATE.
LIQUID FUEL BURNER.
APPLICATION FILED DEC. 18, 1918.

Patented May 18, 1920.
2 SHEETS—SHEET 1.

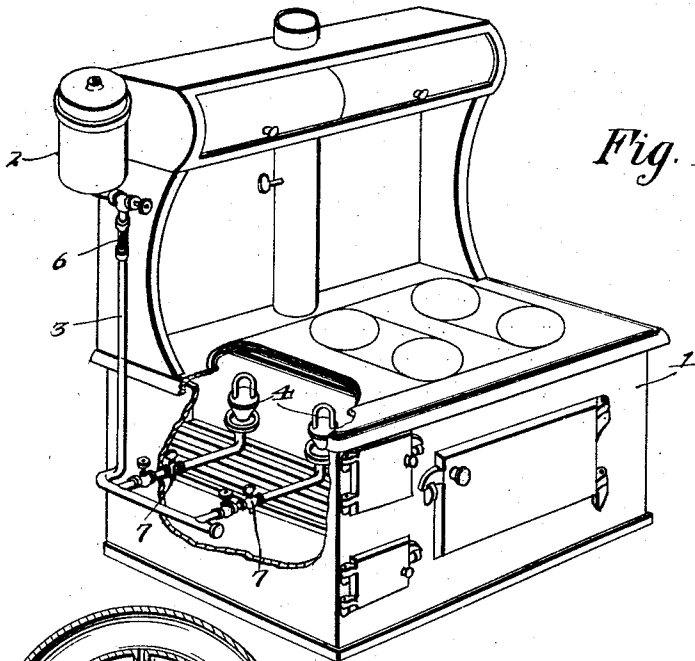


Fig. 1.

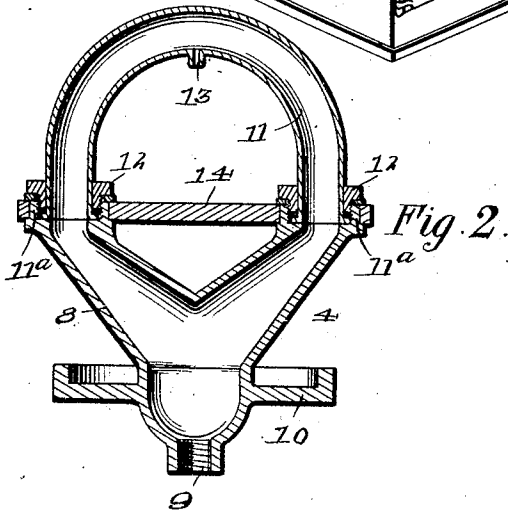


Fig. 2.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

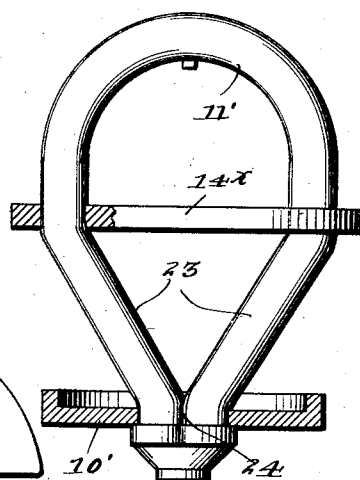


Fig. 6.

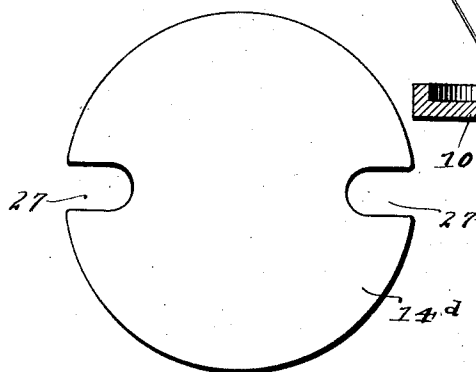


Fig. 4.

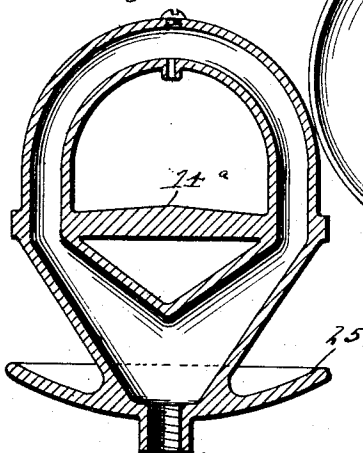


Fig. 5.

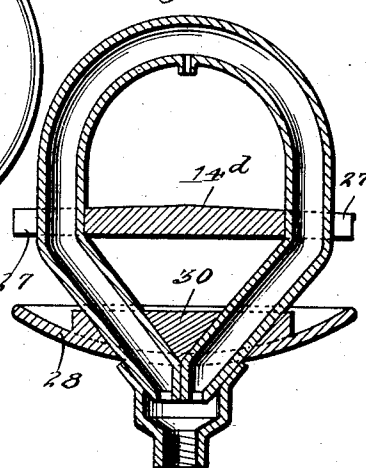
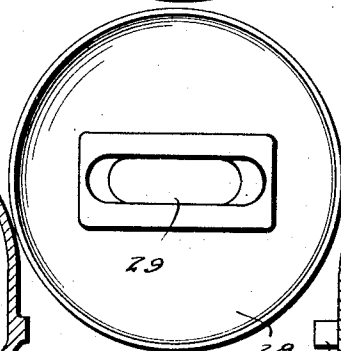


Fig. 7.



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UNITED STATES PATENT OFFICE.

EARL H. TATE, OF LOS ANGELES, CALIFORNIA.

LIQUID-FUEL BURNER.

1,340,803.

Specification of Letters Patent.

Patented May 18, 1920.

Application filed December 18, 1918. Serial No. 287,317.

To all whom it may concern:

Be it known that I, EARL H. TATE, a citizen of the United States, residing at Los Angeles, in the State of California, have invented new and useful Improvements in Liquid-Fuel Burners, of which the following is a specification.

This invention has reference to a novel construction of liquid fuel burners, and the principal object of the invention is to provide means for vaporizing liquid fuel so that the same may be burned in the form of gas and for utilizing the heat from the burning gas to vaporize the fuel.

Another object of the invention is to so construct the burner that it may be easily placed in the fire boxes of stoves, furnaces and the like.

The invention also consists in certain other features of construction and in the combination and arrangements of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 shows the invention in use on a range.

Fig. 2 is a sectional view through one of the burners.

Fig. 3 is a view of still another modification.

Fig. 4 is a sectional view of another modification.

Fig. 5 is a sectional view of another improvement.

Figs. 6 and 7 are detailed views.

In these views, 1 indicates a kitchen range, which may be of any desired type, as this view simply illustrates the application of the invention. 2 represents a reservoir for containing the liquid fuel, such as kerosene or gasoline, and a pipe 3 leads from this reservoir to my improved burners, indicated by the reference numeral 4, which are located in the fire box of the range. The pipes are supplied with suitable valves for controlling the flow of fuel to the burners and with a sight feed 6. At the lowest point of the device I may locate a drain valve 7. In this way the liquid fuel will flow to the

burners by gravity. The dampers of the stove may be utilized for controlling the supply of air to the burners and for taking off the products of combustion from the fire box.

In the form of invention shown in Fig. 2 the burner body is made of Y-shape, as shown at 8. The lower part of the body is supplied with the inlet port 9 to which the supply pipe is connected. A pan 10 is secured to this lower part and this pan is shaped to receive a certain amount of fuel, which has to be ignited to initially heat the burner to vaporize the fuel therein to start the burner. After the burner is started, the heat produced by the flame will vaporize the fuel flowing therinto. The upper ends of the forks of the burner are provided with cylindrical parts 11^a, which are internally screw-threaded. The ends of a U-shaped pipe 11 fit in these cylindrical parts and are held therein by the glands 12. The underside of the highest part of this pipe is provided with an opening 13 through which the gases flow and are ignited. The flame produced thereby will impinge upon a plate 14 carried by the cylindrical ends of the fork of the burner, so as to heat said pipe with said plate and the body of the burner. In this way the fuel flowing into the burner from the supply pipe will be vaporized and will pass up into the U-shaped pipe and will flow from the opening 13. The plate 14 is provided with a pair of diametrically placed holes through which the cylindrical ends of the burner pass.

In the modification shown in Fig. 3, the ends of the U pipe 11' are extended and converge as at 23 to form the burner body. The ends of the pipe are brought together as at 24 and are provided with the inlet nipple to receive the end of the supply pipe. At a point where the convergent portions connect with the U-shaped portion I locate the plate 14^a, against which the flame impinges. Adjacent the lower ends of the pipe I locate the firing pan 10'. This modification may be manufactured to sell at low cost owing to its simplicity.

In the modification shown in Fig. 4, the burner body and U-shaped tube are formed integral and the bottom part of the burner is curved forwardly to provide the firing pan, as shown at 25. In this modification

the body is shown as forked, and at the junction of the U-shaped pipe with the body I locate the plate 14^a. In this figure the said plate is shown as of slightly conical form.

In the modification shown in Fig. 5, the U-shaped tube has its ends extended to form the burner body, said ends being perforated to provide the inlet for the fuel coming from the supply pipe and said ends are provided with the nipple 26 to receive said pipe. The plate 14^a is provided with notches 27 to engage the ends of the U-shaped pipe, said plate resting on the burner body. In this figure the firing pan 28 is provided with a slot 29, the walls of which are extended upwardly to engage the burner body. After the plate is put in place a filling 30 of suitable material is placed in the slot 29 above the parts of the burner body. In this way the pan is held in place and the heat is transmitted to the burner body to vaporize the fuel therein.

It will thus be seen that the parts of the burner will be intensely heated so as to thoroughly vaporize all of the liquid fuel flowing into the burner, while at the same time the heat given off by the burner will thoroughly heat the stove or furnace to which the burner is attached.

It is thought from the foregoing descrip-

tion that the advantages and novel features of my invention will be readily apparent.

I desire it to be understood that I may make changes in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:—

1. A burner of the class described comprising a body of Y-shape, an inverted U-shaped pipe having its ends connected with the ends of the Y, a jet carried by said pipe for directing the flame downwardly toward the body part and a plate located between the arms of the body and the body at the junction of the tube therewith.

2. A burner of the class described comprising a Y-shaped body part, means for introducing liquid fuel into the lower part thereof, a firing pan surrounding the body part, an inverted U-shaped pipe having its ends connected with the ends of the arms of the body part, a jet centrally located in said pipe for directing the flame downwardly toward the body part and a plate carried by the arms of the body part and against which the flame impinges.

In testimony whereof I affix my signature.

EARL H. TATE.