

(No Model.)

H. HOLLAND.  
OIL BURNER.

No. 511,241.

Patented Dec. 19, 1893.

Fig. 1.

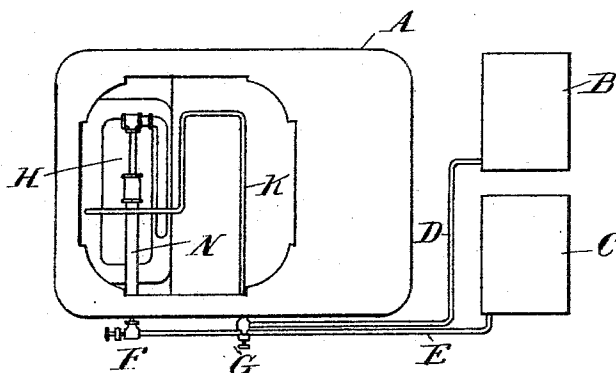


Fig. 2.

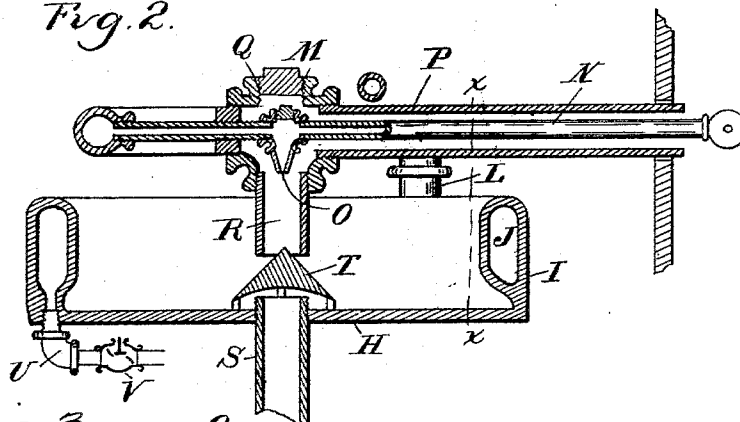
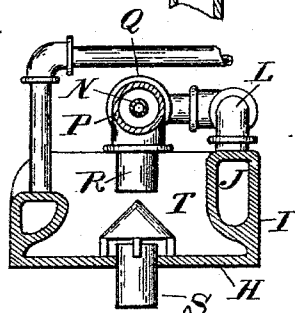


Fig. 3.



Witnesses  
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# UNITED STATES PATENT OFFICE.

HENRY HOLLAND, OF DETROIT, MICHIGAN.

## OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 511,241, dated December 19, 1893.

Application filed December 6, 1892. Serial No. 454,219. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY HOLLAND, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Oil-Burners, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to that class of oil burners in which crude petroleum and superheated steam are commingled to form an inflammable gas.

The invention consists in the peculiar construction, arrangement and combination of parts, and more especially in the use of a combined oil pan and steam generator, and the arrangement of a downturned jet burner directed into said oil pan, all as more fully hereinafter described.

In the drawings, Figure 1 is a diagram plan of my oil burner applied to an ordinary cook stove. Fig. 2 is a vertical central longitudinal section through the burner. Fig. 3 is a cross section on line  $x-x$ , Fig. 2.

A is a cook stove; B, a water tank; C, an oil tank; D and E, pipes leading from the water and oil tanks respectively into the stove and having regulating valves F and G.

H is an oil pan preferably of substantially rectangular shape and adapted to fit into the fire box of the stove. This pan is provided with hollow side walls I which inwardly overhang the pan forming within the annular chamber J. With this chamber preferably above the center of the front wall of the pan is connected the water pipe D which has a return bend K forming a heater preferably arranged above the oven.

L is another pipe connected with the chamber J which preferably rises from about the center of the rear wall of the oil pan and after taking one or more turns is connected with the commingling chamber M. This commingling chamber is preferably formed of an ordinary T-fitting or cross M, to one end of which is connected the pipe L, and to the other end the pipe N which extends to the side of the stove and is connected with the oil pipe E. O is a jet nozzle connected with the under side of the T-fitting M. Surrounding this pipe N and fitting M, is arranged a casing

forming an air tube which preferably consists of the pipe T, the T-fitting Q and pipe R, the latter being in line with the jet nozzle O.

S is another air pipe entering through the bottom of the pan directly below the pipe R. T is a cone shaped deflector arranged below the pipe R and above the pipe S.

U is an overflow pipe connected with the chamber J, and V a valve in said overflow. The parts being arranged as shown and described the operation is as follows:

The oil valve F is first opened allowing the oil to enter through the pipe N into the commingling chamber M and from there to drop through the nozzle O upon the bottom of the oil pan H. After a sufficient quantity is introduced the valve F is closed and the oil ignited. At the same time the valve G in the water pipe D is opened and water is allowed to flow through the pipe K into the chamber J. The heat generated by the burning of the oil in the pan will vaporize the water in the chamber J which rising will pass through the pipe L which forms a superheating chamber into the commingling chamber M. The operator may now open the valve F again and allow the oil to flow into the chamber M where it is commingled with the superheated steam and ejected through the nozzle O. In passing through the pipe R the oil and steam are mixed with air entering through air pipe Q, thus making an inflammable gas, which immediately ignites on passing the end of the tube R. The cam shaped deflector arranged directly underneath the tube R will deflect the flame over the bottom of the pan toward the sides thereof and the air pipe S underneath said deflector will supply sufficient air to insure perfect combustion. The object of thus directing the flame downward and over the bottom of the pan is to consume that portion of oil remaining after the lighter compounds have been burned, for it is well known that in burning petroleum in an open vessel there is always a residuum. Again, in thus directing the flame it impinges against the inner wall of the chamber J and as that wall is inclined inwardly and forms the bottom as well as the side of the chamber J the greatest heat efficiency is obtained. The flame in rising from this point comes in contact with

the air casing Q and superheating pipe L, thus both warming the air and superheating the steam.

What I claim as my invention is—

5 1. In an oil burner, the combination with a water supply pipe and oil supply pipe, of an oil pan having overhanging hollow walls extending entirely around said pan forming a steam generating chamber, a commingling  
10 chamber arranged above said oil pan and a downturned jet burner directed into said pan, substantially as described.

2. In an oil burner, the combination with a water supply pipe, an oil supply pipe, of an  
15 oil pan having hollow walls forming a steam generating chamber, a commingling chamber above said oil pan, a down-turned jet burner directed into said pan and an air passage through the bottom of said pan.

20 3. In an oil burner, the combination with a water supply pipe, and oil supply pipe, of an oil pan having hollow walls forming a steam generating chamber, a commingling chamber arranged centrally above said pan the down-  
25 turned jet burner directed into said pan, a cone deflector beneath the jet burner and an

air passage through the bottom of the pan, substantially as described.

4. In an oil burner, the combination with the oil pan, having hollow side walls forming  
30 a steam generating chamber and a water pipe communicating with said chamber, of a commingling chamber M above said oil pan, the downturned jet nozzle O, the oil pipe N, the  
35 surrounding air casing having a downturned portion R, substantially as described.

5. In an oil burner, the combination of the oil pan H having hollow overhanging side walls forming a steam generating chamber, the superheating chamber L, the comming-  
40 ling chamber M having the downturned jet burner O, the oil pipe N, the surrounding air casing Q having the downturned portion R, the cone shaped deflector T and the air inlet S, substantially as described.

45 In testimony whereof I affix my signature in presence of two witnesses.

HENRY HOLLAND.

Witnesses:

M. B. O'DOHERTY,  
N. L. LINDOP.