

H. H. AMES.
LIQUID FUEL BURNER.

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1,063,147.

Patented May 27, 1913.

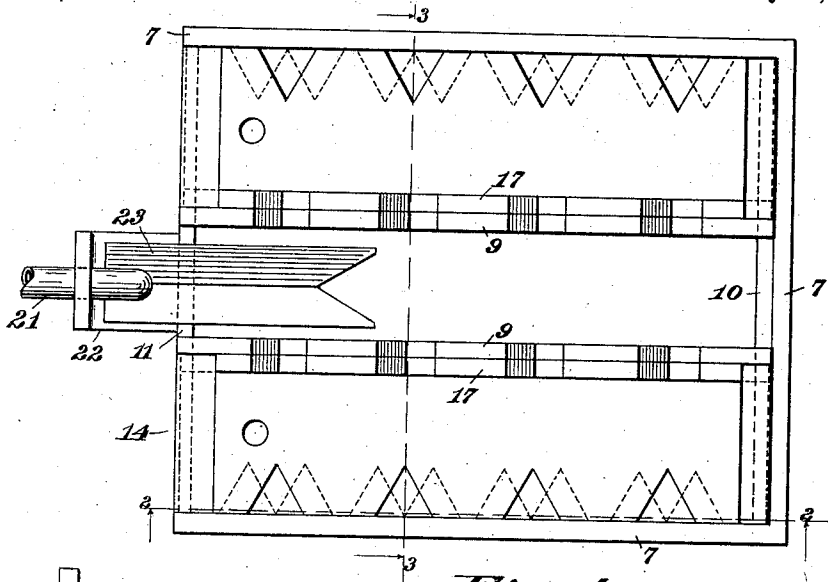


Fig. 1.

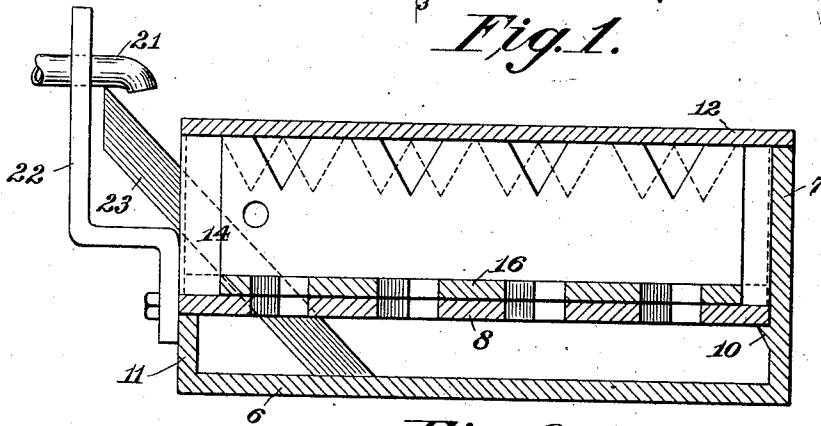


Fig. 2.

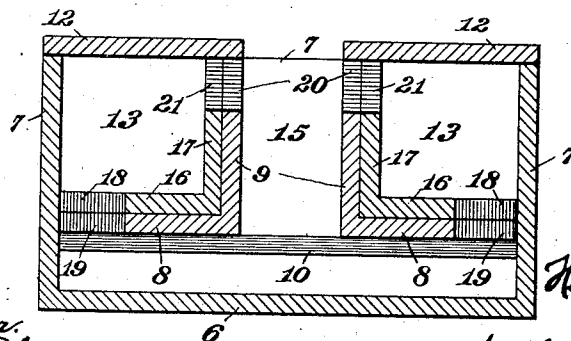


Fig. 3. by *H. E. Jew*
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LIQUID-FUEL BURNER.

1,063,147.

Specification of Letters Patent.

Patented May 27, 1913.

Application filed April 1, 1911, Serial No. 618,427. Renewed April 11, 1913. Serial No. 760,557.

To all whom it may concern:

Be it known that I, HENRY H. AMES, a citizen of the United States, residing at Great Bend, in the county of Barton and State of Kansas, have invented certain new and useful Improvements in Liquid-Fuel Burners, of which the following is a specification.

This invention relates to liquid fuel burners, and especially to burners adapted and intended for the combustion of crude oil.

The object of the invention is to provide an improved device for the purpose stated, characterized particularly by novel means for feeding air to the fuel in such manner that the fire will be smokeless, and provide a maximum amount of heat, by complete combustion of the fuel.

A further object of the invention is to provide a simple device for the purpose stated, which can be cheaply constructed and readily used as a burner for a furnace, stove, oven or the like.

The invention is illustrated in the accompanying drawings in which—

Figure 1 is a plan of the burner, with the cover removed. Fig. 2 is a section on line 2—2 of Fig. 1. Fig. 3 is a section on line 3—3 of Fig. 1.

The burner comprises a pan or box, the bottom of which is indicated at 6 and the side and end walls at 7.

The upper part of the body of the box is divided by angular plates or partitions having bottoms 8 and sides 9, these partitions resting at one end upon a ledge 10 at the end of the box, and at the other end upon the edge of a low front wall 11 integral with the bottom of the outer box. The partitions above referred to, in connection with the covers 12 on the top of the box, form air chambers 13 which are open at one end for the inlet of air through the open ends 14 of the casing. The side pieces 9 of the partitions are spaced apart forming therebetween a combustion chamber 15 the outlet of which is through the top of the box, between the covers 12. The floors 8 of the air chambers are spaced from the bottom 6 of the box, so that the oil may spread thereunder, upon the bottom 6 of the casing.

In each air chamber 13 is a valve consisting of an angular plate of proper size and shape to fit in said air chamber, the bottom 16 of the valve resting on the floor 8 of the air chamber and the side 17 of the valve

being in contact with the side wall 9 of the air chamber. The bottom plates 16 and 8 of each valve and air chamber have notches or ports 18 and 19, respectively, and the upper edges of the sides 9 and 17 of the partition and valve have ports 20 and 21 respectively, these ports being located at the upper edges of said plates, directly under the cover. The valves are somewhat shorter than the air chambers, and are capable of adjustment therein by sliding the valve lengthwise to increase or decrease the openings through the ports, in order to vary the amount of air supplied. The valves may be shifted by a poker or any suitable tool.

Oil is supplied from a feed pipe 21, supported by a bracket 22, into a trough 23 leading through the open end of the box into the bottom thereof.

In the operation of the burner combustion takes place in the chamber 15. Fuel is supplied as above stated and spreads over the bottom of the pan. Air enters through the openings 14 in the end of the box. Part of it flows through the ports 18 and 19, downwardly onto the fuel, to partially support the combustion; the remainder of the air flows through the ports 20 and 21 into the space 15, to support combustion therein, the flames passing through the slot or opening in the top of the box. The entering air is heated by the adjacent walls of the air chambers, and by the provision of a supply which passes directly over the fuel body in the pan, and an additional supply which unites with the combustible gases in the space 15, complete combustion and a smokeless flame is insured. By the means described crude oil may be burned without smoking. The valves may be shifted to regulate the supply of air as necessary or desirable.

An advantage of the burner is the cheapness with which it may be constructed. The parts may be cast separately and quickly assembled and by removing the covers the valves and partitions can be lifted out for cleaning the burner when desired.

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

1. A liquid fuel burner comprising a box into which the fuel is fed, said box having an opening in the top thereof, and air chambers located in the upper part of the box and spaced apart to form a combustion space

therebetween under said opening, said chambers having valved ports opening into said space.

2. A liquid fuel burner comprising a box into which the fuel is fed, said box having an opening in the top thereof, and air chambers located in the upper part of the box, said chambers being spaced apart under said opening and also spaced from the bottom of the box, and having valved ports in the bottom, and also in the sides toward said opening.

3. A liquid fuel burner comprising a box into which the fuel is fed, said box having an opening in the top thereof, angular partitions in opposite sides of the box, said partitions being spaced apart to form a combustion chamber therebetween leading to said opening, said partitions being also spaced from the bottom of the box, thereby forming air chambers in upper opposite corners of the box, said partitions having ports in the bottoms and sides thereof, and valves controlling said ports.

4. A liquid fuel burner comprising a box into which the fuel is fed, said box having an opening in the top thereof and also having air inlet openings in one end thereof, partitions in the box forming air chambers in the upper opposite corners thereof, with which chambers said air inlet openings communicate, the partitions being spaced apart to form a combustion chamber therebetween under said opening in the top of the box, and said partitions having valved openings into the interior of the box.

5. A liquid fuel burner comprising a box having a fuel space in the bottom thereof and an opening in the top wall thereof, air

chambers located in the upper part of the box, at opposite sides thereof, above said fuel space, the air chambers being spaced apart to form a combustion chamber therebetween under said opening in the top of the box, and valved ports in said chambers, opening into the fuel space and also into the combustion chamber.

6. A fuel burner comprising a box having an opening in the top, said box being closed at one end and having air inlet openings at the other end, angular partition plates in the box, forming air chambers communicating with said air inlets, the plates comprising bottom parts and side parts, the latter being spaced from each other to form a combustion chamber therebetween under the opening in the top of the box, and each of said parts having openings therein, and sliding valves on said partitions, controlling said openings.

7. A liquid fuel burner comprising a box having a fuel space in the bottom thereof, and an opening in the top thereof, a feed trough leading to said space, and air chambers located in opposite sides of the box above said fuel space, said air chambers being spaced apart to form a combustion chamber therebetween under said opening, and having valved ports communicating respectively with said fuel space and combustion chamber.

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

HENRY H. AMES.

Witnesses:

JAMES CLAYTON,
CHAS. A. HOOPER.