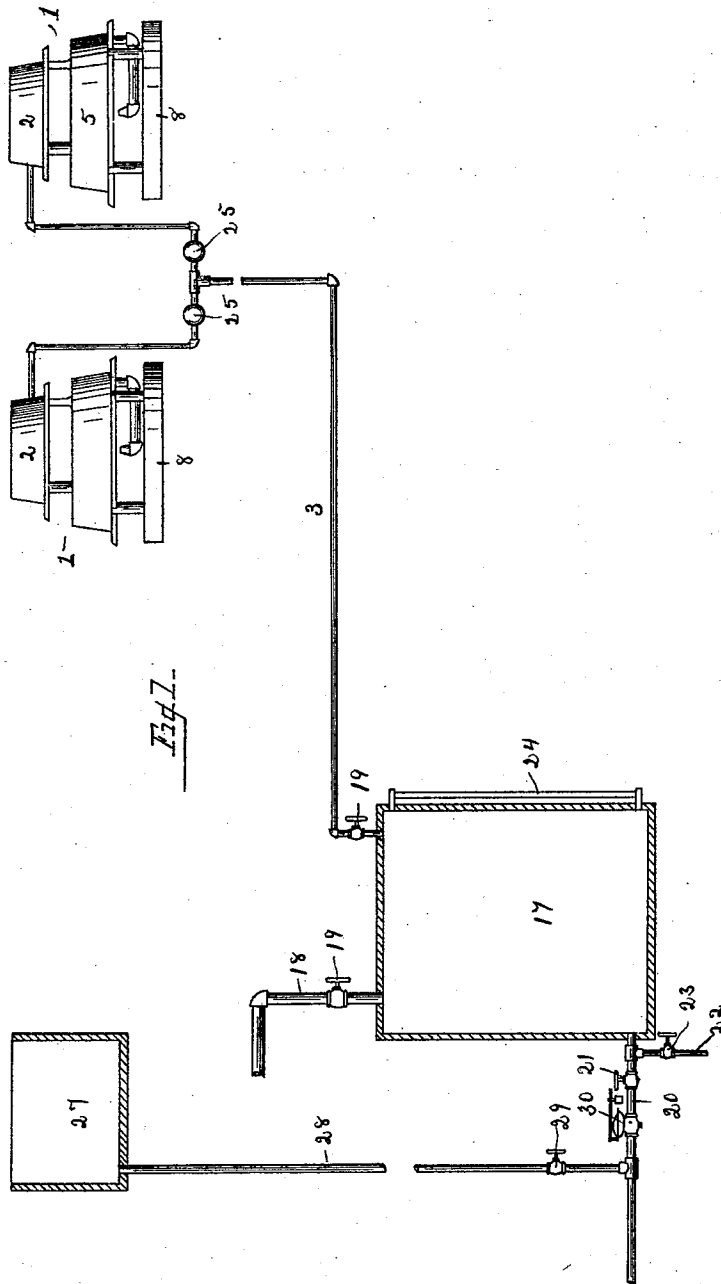


(No Model.)

J. D. BLAKELEY & L. BOWSER.
HYDROCARBON BURNER AND MEANS FOR SUPPLYING FUEL THERETO.

No. 495,295.

Patented Apr. 11, 1893.



WITNESSES.

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UNITED STATES PATENT OFFICE.

JOHN D. BLAKELEY, OF TOLEDO, AND LYCURGUS BOWSER, OF CYGNET,
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HYDROCARBON-BURNER AND MEANS FOR SUPPLYING FUEL THERETO.

SPECIFICATION forming part of Letters Patent No. 495,295, dated April 11, 1893.

Application filed April 6, 1891. Serial No. 387,797. (No model.)

To all whom it may concern:

Be it known that we, JOHN D. BLAKELEY, of Toledo, county of Lucas, and LYCURGUS BOWSER, of Cygnet, county of Wood, State of Ohio, have invented certain new and useful Improvements in Hydrocarbon-Burners and Means for Supplying the Fuel Thereto; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to the figures of reference marked thereon, which forms part of this specification.

Our invention relates to a hydro-carbon burner and means for supplying the fuel thereto, and has especial reference to that class of burners wherein the oil is vaporized in a retort and burned in a gaseous state.

The object of our invention is to provide a burner having means for supplying a constant flow of oil thereto under pressure.

The invention consists in the parts and combination of parts hereinafter described and pointed out in the claim.

In the drawing, the figure is an elevation of a complete burner, oil tank, and pressure device, for supplying the oil thereto, the tank and pressure device being shown in vertical section.

Heretofore great difficulty has been experienced in insuring a steady and unvarying supply of oil to the burners a condition necessary to perfect vaporization in the class of burners to which our invention belongs.

In attempting to feed the oil by gravity it has been found necessary to elevate the tank to a height that renders it inconvenient to force the oil therein, and in forcing the oil to the burners by means of compressed air, results in a constantly varying pressure, as well as close and frequent attention to the air pump.

In the burner herein described, in which is employed a sufficient heating surface to fully vaporize the oil, it is necessary that the supply of oil be constant. We have therefore devised a burner and means for supplying oil thereto which if properly constructed as here-

in described will insure a perfect combustion of the oil.

1, designates the burner comprising a combined retort and deflector 2, for the reception of the oil as it is fed through pipe 3, and heated to an intense degree by reason of the products of combustion impinging against the bottom of and surrounding the retort, as well as a pipe 4, leading from the retort and opening into the top of a combined vaporizer 5 located below the retort and deflector.

17 designates a tank which may be either buried or placed in a convenient place adjacent to the stove not shown and in the top of which, pipe 3, enters.

18, designates an oil or fuel supply pipe, which supplies fuel to the tank and leads to any preferred source of supply, each of the pipes 3, and 18, being provided with cocks 19, to cut off or allow flow, from or into the tank.

20 designates a pipe connected with the water works pipe, the flow being controlled by cock 21, and 22 designates a drain pipe to draw off the water when it has risen too high in the tank, as will be hereinafter described, and is provided with a cock 23.

24 designates a gage attached to the fuel tank for determining the quantity of liquid contained therein.

In operation, when it is desired to fill the tank, cocks 19, 21, and 23, are closed, and cock 19 in pipe 18, is opened to allow the oil or fuel to flow into the tank until the same is filled, when this cock is then closed and cock 21 is opened allowing the water from the water supply to flow into the tank, thereby forcing the oil up, the oil being of less specific gravity, so that when cock 19 in pipe 3, is opened the oil will be forced through pipe 3 to the burner.

To start an initial fire, cocks 25 arranged in pipe 3, are opened,—that is when both burners are to be used it being understood that but one burner may be used by opening one cock and leaving the other closed, allowing the oil to flow into the deflecting retort 2, from thence to the vaporizer 5, through pipe 9, and burner 10 where it is lighted the products of combustion passing through the annular opening in the vaporizer and striking the under side of retort 2, where it is deflected and en-

tirely surrounds the vaporizing chamber as well as pipe 4, thereby raising the oil to such a temperature as to partially vaporize the same, when it passes through pipe 4, (which has
5 become heated to a cherry red heat) and down into the vaporizer where the vaporization is completed, and the gaseous vapor passes through pipe 9 to burner 10, where during combustion the air is drawn through the opening in the vaporizer and unites in combustion
10 with the hydro carbon vapor, thereby insuring a perfect combustion, the central opening in the vaporizer acting as a mixer of the air and gaseous vapor.
15 In case water works pressure can not be had we employ a tank 27, elevated some distance above the oil tank 17, having a pipe 28, leading to the fuel tank and provided with a cock 29 to regulate the flow of water from the water tank to the oil tank, and in view of the
20 fact that the pressure of water either in city water works, or from tank 27, by gravity, may

vary, we interpose a pressure regulating valve 30 in pipe 20, whereby the pressure of water upon the oil in tank 17 can be regulated to a
25 nicety.

We lay no claim to any especial form of regulating valve, but may use any of the forms desired.

What we claim is—

The combination with a tank of oil supply and discharge pipes, a water supply pipe, a regulating valve, and a waste pipe connected with the water pipe, intermediate to the valve and tank.
30

In testimony that we claim the foregoing as our own we hereby affix our signatures in presence of two witnesses.
35

JOHN D. BLAKELEY.
LYCURGUS BOWSER.

Witnesses:

WILLIAM WEBSTER,
CARROLL J. WEBSTER.