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HYDROCARBON-BURNER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HENRY L. WADLEY, a citizen of the United States, residing at Sentinel, in the county of Washita and State of Oklahoma, have invented new and useful Improvements in Hydrocarbon-Burners, of which the following is a specification.

The present invention has reference to hydrocarbon-burners and it comprehends certain improvements, hereinafter specified at length, in or relating to the construction of the burner proper and the air tube whereby the vaporization of the fuel and its mixture with the proper amount of air necessary for effective burning are insured.

An embodiment of the invention is illustrated in the accompanying drawing, whereof—

Figure 1 is a vertical sectional view of the improved burner complete, the section being taken on the line 1—1 of Fig. 2; Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1; Fig. 3 is a vertical sectional view of a double burner constructed in accordance with the invention and embodying the same main parts as the single burner represented in Figs. 1 and 2; and Fig. 4 is an enlarged vertical sectional view of a burner proper.

As shown in said drawing, the device comprises, essentially, an air tube A, and one or more burners B, and a burner boss 2. The part last mentioned, which may be a separate piece, which may be a part of the air tube or more branches thereof, and which is described, the flow of the oil to the burner branches being controlled by a control valve or valve 3.

The burner proper B consists of a base plate 4 formed with an upstanding peripheral wall or flange 10, and, also, with a central upstanding boss 11 that is preferably frusto-conical in shape and is provided, in turn, with an axial passage or bore 12 for the reception of the oil pipe branch 7. Both the base plate and the peripheral wall or flange of the burner may have any suitable shape, the outer face of the aforesaid wall or flange being shown as outwardly inclined in the single burner construction depicted in Figs. 1 and 2. The top of the boss 11 is, by preference, dished, and into the hemispherical cavity 13 thus produced projects the threaded upper end of the branch pipe 7, which latter is provided at the point where it enters the said cavity with a series of out-

let holes or perforations 14. This cavity is designed to receive a spreader 15 that is attached to the threaded portion of the branch, being provided for that purpose with a threaded socket 16 wherein the branch end is fitted. In the construction illustrated, the spreader has an approximately hemispherical shape, but is so proportioned that the unoccupied concavo-convex space, or throat-way, 17 left between it and the cavity wall gradually decreases from its center to its edge portion, (see Fig. 4).

Air is supplied to the burner or burners by means of the air tube A, which part comprises a series of integrally-connected flues, these flues being open at the lower ends and meeting and communicating at their upper ends. In the single burner construction, the two end flues 18 constitute the air inlets, while the central discharge flue 19 is disposed directly over the burner and encircles the upper portion of the boss 11 thereof. The two inlet flues are convergently arranged, as shown, and preferably taper slightly toward their upper ends, the discharge flue being oppositely tapered and arranged vertically.

Where the two burners are employed, the construction just described is approximately reversed: the enlarged central vertical flue 18' forms the air inlet, while the two inclined end flues 19' serve as the discharge flues and are provided at their lower ends with offset vertical portions 19² that encircle the upper portions of the burner cones or bosses in the same manner as the flue 19 in the single burner construction. In both constructions, the air tube is flattened at the top, as shown.

Supporting means of any desired type may be provided for the device as a whole, such means consisting, for example, of a base 20 having, in one instance, a pair of openings 21 which register with the open lower ends of the inlet flues 18 and, in the other instance, a single central opening 21' in registration with the open lower end of the flue 18'.

The operation is believed to be apparent from the foregoing, and, hence, to require no extended description. It may be stated, however, that the burner boss or bosses, constructed as above described, will direct and spread the flame against the walls of the discharge flue or flues, so as to rapidly heat the same, and, in turn, the air drawn therethrough. The highly heated air meet-

ing the upwardly moving liquid fuel at or near the top of the boss or bosses instantly converts the fuel into vapor which at once ignites, as will be understood. The burner
5 may be initially started in any desired manner, as, for instance, by allowing a suitable quantity of the liquid fuel to flow into the cup or cups formed by the bottom and peripheral walls 9 and 10 of the burner or
10 burners proper; the fuel in the cup or cups is then ignited and is allowed to burn therein until the flue or flues become sufficiently heated to effect the required vaporization of the fuel, the latter being then allowed to
15 feed through the branch or branches 7.

I claim as my invention:

1. In a hydrocarbon-burner, the combination of a cup provided with an upstanding central frusto-conical boss having a cavity
20 formed in its top, and an axial passage opening thereinto; a fuel supply pipe having a branch which projects upwardly through said passage into said cavity and is provided at the point where it enters
25 the latter with fuel outlet openings; a spreader disposed within said cavity and attached to the projecting end of said branch, the side wall of the spreader being spaced from the wall of the cavity to produce
30 a throatway with which said openings communicate; and an air tube associated with said cup and including connected inlet and discharge flues in communication at their upper ends and having their lower

ends open, the lower end of the discharge flue encircling the upper portion of said boss.

2. In a hydrocarbon-burner, the combination of a cup provided with an upstanding central frusto-conical boss having an approximately hemispherical cavity formed in its top, and an axial passage opening thereinto; a fuel supply pipe having a branch which projects upwardly through said passage into said cavity and is provided at the point where it enters the latter with fuel outlet openings; an approximately hemispherical spreader disposed within said cavity and attached to the projecting end of said branch, the side wall of the spreader being spaced from the wall of the cavity to produce a concavo-convex throatway which gradually decreases in width from its center to its edge, with which throatway said openings communicate; and an air tube associated with said cup and including connected inlet and discharge flues in communication at their upper ends and having their lower ends open, the lower end of the discharge flue encircling the upper portion
35 of said boss.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HENRY L. WADLEY

Witnesses:

H. M. BENEFIELD,
G. C. SHIELDS.