

UNITED STATES PATENT OFFICE.

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OIL BURNER.

Application filed February 16, 1926. Serial No. 88,526.

My invention relates to oil burners and has for its object to provide a new and novel means of burning oil for fuel where diffused heat is required.

5 A further object is to provide an oil burner designed and constructed to improve combustion by first changing the oil to a gas and before ignition, and to make a soft, diffused hydrocarbon flame whereby complete combustion of the gas is obtained with practically less air than has heretofore been required.

10 A further object is to provide a burner which will economically and efficiently burn the cheaper grades of oil fuel giving off an intense heat with little cost.

15 These objects I accomplish with the device illustrated in the accompanying drawings in which similar numerals and letters of reference indicate like parts throughout the several views and as described in the specification forming a part of this application and pointed out in the appended claims.

20 In the drawings in which I have shown the best and most substantial embodiment of my invention, Figure 1 is a vertical longitudinal section of the burner with parts shown in elevation; and Figure 2 is a rear view of the burner.

25 The device consists of a frusto-conically shaped generator A, in which the fuel oil is vaporized and generated into a gas. The said generator A consists of two spaced apart frusto-conically shaped members 1 and 2 which are fastened together at one end by an annular plate 13 to form a hollow tubular gas chamber. The other end of each of the members 1 and 2 is welded to outwardly flanged members 3 and 3^a which are welded together to form an extension member B to allow for expansion and contraction of the metal of which the generator A is made, when it is heated and then cools during use. The interior of said generator A is the combustion chamber. The oil is introduced into the said generator A through an oil pipe 4 which is secured on the upper side of the generator and near the nozzle end. A regulating valve 5 of any of the conventional types is connected at the other end of the said pipe 4 and controls the amount of oil introduced into the interior of the generator and is connected with the supply pipe 6 of the oil supply or reservoir, not shown in the

drawings. At the other end, and on the opposite side of the generator from the pipe 4, I provide a pipe 7 which is welded to an upright pipe 8 at right angles to the pipe 7. The extreme end of the pipe 7 is closed with the cap 9, and the upper and lower ends of the pipe 8 are closed by the caps 10 and 11, so that the pipes can be cleaned at any time when it becomes necessary or desirable. A burner jet C is secured to the inner side of the pipe 8, at right angles thereto, and about centrally located as to the large end of the frusto-conically shaped generator A. A preheater of any of the commonly used gas burners D is provided directly under the generator A for preheating the oil when the burner is to be started.

The operation of my device is as follows:—

When it is desired to start the burner the gas preheater is lighted and the oil is turned into the generator A in sufficient quantity to partially fill its interior. The heat from the gas burner D will expand and vaporize the oil in the generator and form a gas which will be forced from the jet C by expansion and will be lighted by the flame from the preheater below it. The oil is then turned on in the valve 5 in the quantity desired and the generator continues to vaporize the oil forming a gas, a small portion of which is in turn burned in the interior cone-shaped burner, the balance being forced into the combustion chamber of the burner to be heated, giving a diffused hydrocarbon gas flame.

Having thus described my invention I desire to secure by Letters Patent and claim:—

1. An oil burner comprising two frusto-conically shaped members spaced apart and one within the other with the ends sealed; an expansion joint in one end thereof; said expansion joint consisting of a flange on the inner frusto-conically shaped member at right angles thereto, a flange on the outer frusto-conically shaped member at an angle thereto to contact with the right angled flange on the inner member, with the edges of said flanges sealed together; an oil pipe entering the space between said members at one end thereof; a gas pipe connected with said space near the other end of said space; a nozzle having an exit port in its end wall; and means for preheating said generator.

2. An oil burner comprising a frusto-conically shaped generator having spaced apart side walls; an annular seal plate on the ends of said side walls; an angled flange on the end of the outer side member of the generator, and sealed to the contiguous seal plate to provide an expansion joint at the small end of the generator; means to direct oil to the interior of the generator; and a jet to fire a portion of said oil when it has been generated into a gas. 10

In testimony whereof I have affixed my signature.

MITCHELL CARTER.