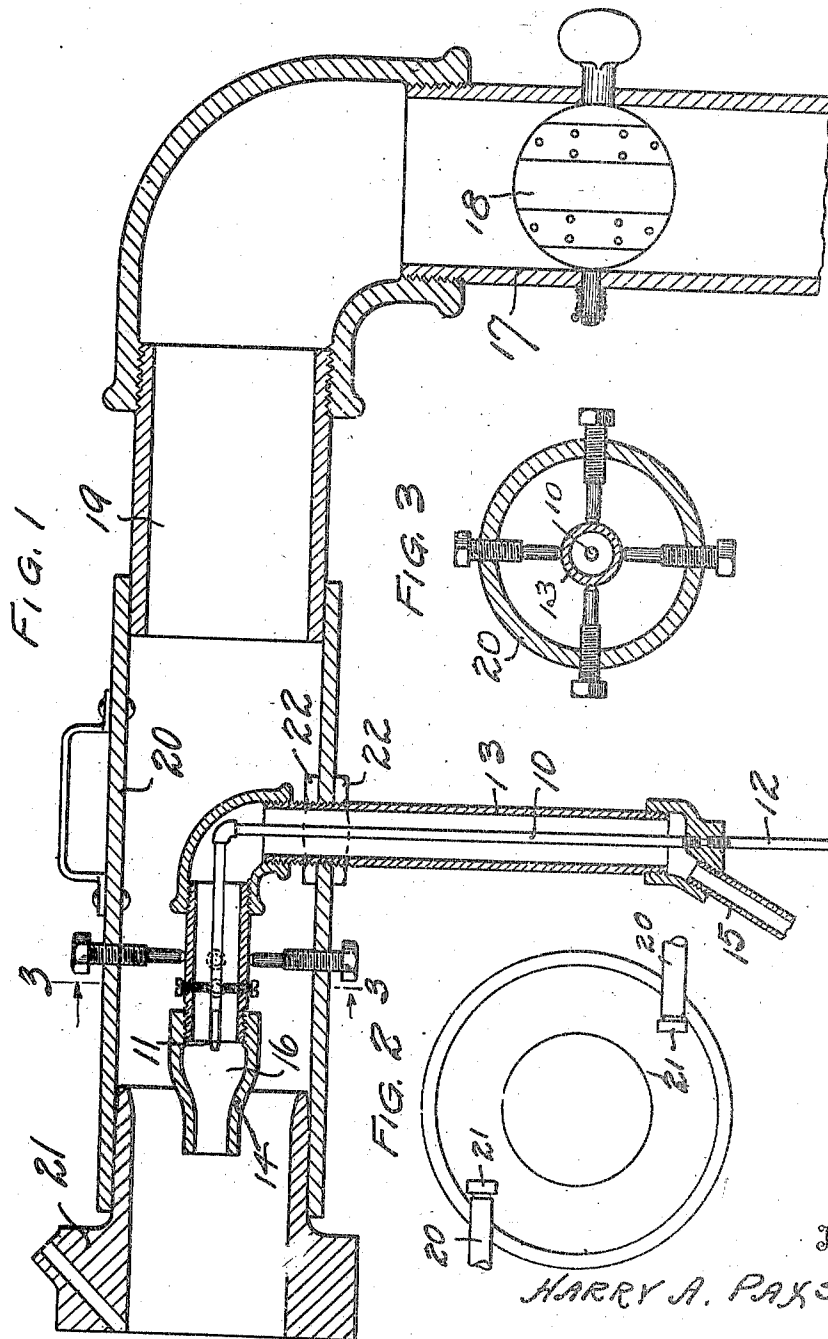


1,290,334

H. A. PAXSON.
OIL BURNER.
APPLICATION FILED SEPT. 24, 1918.

Patented Jan. 7, 1919.



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OIL-BURNER.

1,290,334.

Specification of Letters Patent.

Patented Jan. 7, 1919.

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To all whom it may concern:

Be it known that I, HARRY A. PAXSON, a citizen of the United States, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented certain new and useful improvements in Oil-Burners, of which the following is a specification.

This invention relates to oil furnaces wherein a spray of oil is blown into the furnace and ignited, while in a gaseous form, and the primary object of this invention is to provide novel means whereby the oil after being properly mixed with air is blown into the furnace where complete combustion takes place thus creating an intense heat by which such metals as lead, tin, zinc and copper are readily fused.

Another object of this invention is to provide a novel nozzle into which the air and oil are introduced under pressure, together with means for carrying the particles of oil after being mixed with air into the combustion chamber of the furnace.

A still further object of this invention is to provide adjustable means for introducing the oil into the furnace in such manner that waste of oils is eliminated.

With these and many other objects in view which will be more readily apparent as the nature of the invention is better understood the same consists of the novel combination, construction and arrangement of parts as will be hereinafter more fully described, illustrated and claimed.

It will be readily understood by those skilled in the art to which this invention belongs that the same is susceptible to some structural changes or modification without departing from the spirit or scope of the invention, but a preferred and very practical application thereof is shown in the accompanying drawings in which—

Figure 1 is a sectional view of the improved nozzle, showing the manner of placing the oil and air pipes and their relation to each other.

Fig. 2 shows a cross section of a burner and a method of locating the same with reference to the walls of the furnace.

Fig. 3 shows a cross sectional view taken on the line 3—3 of Fig. 1 and illustrates the method adapted for holding the central air pipe in position.

Similar reference numerals refer to similar parts throughout the several figures of the drawings.

In carrying out this invention no change is contemplated in the usual form of oil furnaces and to this end the present invention consists essentially of an oil pipe designated by the numeral 10, which connects with the oil supply at one end and terminates in a nozzle 11 at the other end, suitable controlling valves being interposed in the line 12 where required for convenience of operation.

The oil pipe 10 is preferably positioned within an air pipe 13 which terminates in a nozzle 14 and is connected at the opposite end to an air supply through a pipe 15 which is equipped with suitable air controlling valves not shown in the drawings.

For the purpose of keeping the oil pipe on the longitudinal axis of the air pipe, pipe positioning means are provided similar to that shown in Fig. 3 of the drawings.

After the oil and air are mixed in the chamber 16 of the nozzle 14 the excess oil is likely to drip off the end of the nozzle and thus be wasted and to obviate this waste and at the same time provide means for introducing more oxygen into the combustion chamber in order that complete combustion may obtain, there is provided an air blast pipe 17 which is preferably connected to a motor driven fan. The pipe 17 is provided with a damper device 18 which is used to control the pressure of the air blast around the nozzle 14. When this improved nozzle is used in connection with rotatable furnaces there is provided a nipple 19 upon which the sleeve 20 is made to slide, the length of the nipple being sufficient to permit the air blast nozzle 21 being withdrawn from the furnace in order that the same may be revolved as required. In this connection it is to be noted that the pipes 12 and 15 at the lower end of the air and fuel pipe assembly 13 are intended to act as nipples to receive flexible hose, to permit of the shifting of the section 20 onto the portion 19.

In order to operate the oil furnace appliance it is necessary to first open the air blast pipe 17 thus permitting the air to sweep past the end of the air nozzle 14 carrying off any oil that may have passed through the nozzle 11 due to leaky valves in the oil supply pipe. The air pipe 13 is then opened permitting the air to sweep the end of the oil pipe 11, after which the oil pipe is opened sufficient to obtain the required amount of heat in the combustion chamber.

The air pipe 13 is positioned in the sleeve 20 and locked therein through suitable lock nuts 22, as shown in Fig. 1 of the drawings.

For the purpose of getting a more even temperature of the crucible which is positioned in the interior of the furnace it has been found advisable to locate the burners such that the flame which proceeds from the mouth of the burner will strike tangential on the interior of the furnace as shown in Fig. 2.

From the foregoing it will be apparent that the present invention essentially includes in its organization an air blast head 21 which may be directly connected with a main air supply pipe-line of relatively large capacity, which pipe-line includes a fixed valved air supply pipe that is connected with the pipe 17-19 which is connected with the head 21 by means of a slidable pipe section or sleeve 20 which carries therewith a combined fuel and air nozzle device for atomizing the fuel, the latter consisting of the atomizing nozzle 14 connected to an auxiliary air supply pipe-line 13 which houses therein the fuel supply pipe 10 whose nozzle 11 discharges into the mixing chamber 16.

I claim:—

1. An oil burner for furnaces including a main air supply pipe line consisting of a burner head, an air pipe having a valve therein and a slidable section between the burner head and air pipe, and a combined fuel and air nozzle device carried by said sliding section and adapted to discharge into the burner head.

2. An oil burner for furnaces including a main air supply pipe line consisting of a burner head, a fixed air supply pipe having a valve, and a sliding sleeve section between the burner head and fixed air pipe, and a combined fuel and air nozzle device carried by said sleeve and consisting of a discharge nozzle having a mixing chamber, an auxil-

iary air supply pipe line fitting into said nozzle and a fuel supply pipe extending through said auxiliary air supply pipe line and having its discharge outlet coincident with the auxiliary air supply outlet in the mixing chamber of said nozzle.

3. An oil burner for furnaces including a burner head, a main air supply pipe line connected therewith and consisting of a fixed air supply section provided with a valve, and a shiftable section between the burner head and fixed section, an atomizer fuel nozzle carried by the slidable section and consisting of a nozzle proper having a fuel and air mixing chamber and a constricted air outlet, an air supply pipe fitted to one end of said nozzle, means for centering the air supply pipe within the shiftable section, and a fuel supply pipe disposed axially within the auxiliary air supply pipe and having its outer end opening into the mixing chamber of the atomizer nozzle.

4. An oil burner for furnaces including a burner head, a main air supply pipe line of relatively large capacity connected directly with the burner head and including a fixed section provided with a valve and a shiftable section between the burner and the fixed section, a fuel atomizer nozzle device carried by the shiftable section and consisting of a portion disposed axially within the section and a connecting portion disposed at right angles to said section and extending exteriorly thereof, said nozzle device also including an atomizer nozzle and air and fuel supply pipes connected with said nozzle.

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

HARRY A. PAXSON.

Witnesses:

J. T. HANLON,
N. E. GEE.