

(No Model.)

J. R. ARMSTRONG.
OIL BURNER.

No. 569,315.

Patented Oct. 13, 1896.

Fig. 1.

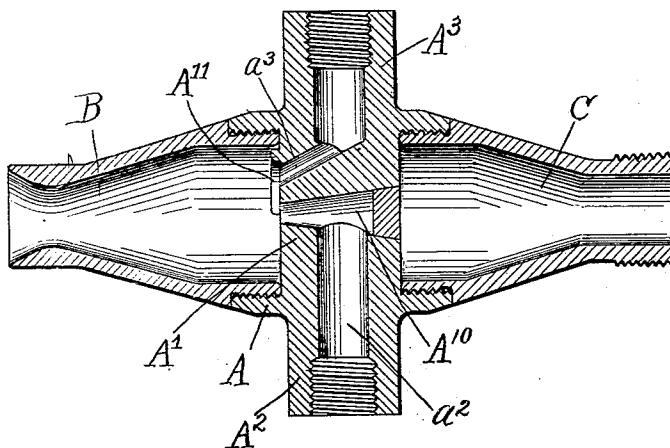
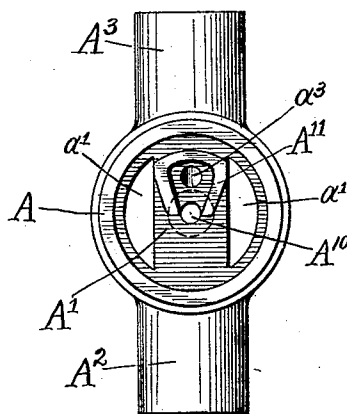


Fig. 2.



Witnesses.

E. T. Wray.
Jean Elliott

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his attys

UNITED STATES PATENT OFFICE.

JOHN R. ARMSTRONG, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE INTERNATIONAL GAS AND FUEL COMPANY, OF SAME PLACE.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 569,315, dated October 13, 1896.

Application filed December 3, 1892. Serial No. 453,914. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. ARMSTRONG, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Oil-Burners, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part thereof.

In the drawings, Figure 1 is a vertical axial section through my improved burner. Fig. 2 is a front end elevation with the discharge-nozzle removed.

This burner comprises a cylindrical body A, designed to be located with its axis horizontal when the burner is in use, having a vertical bridge A' at the center and lateral segmental passages $a' a'$, which extend longitudinally through the body. Coaxial with the cylinder I form through the bridge A' a passage A¹⁰, tapering from the rear to the discharge at the forward end of the bridge. This passage is plugged up at the rear end after its formation, and through the boss A², which projects downwardly from the body A, a duct a^2 is formed, leading into the axial passage A¹⁰. Through the boss A³, extending upwardly from the body A, I drill into the upper end of the bridge, and from the forward end of the bridge by an oblique course I extend the relatively small duct a^3 , entering the bottom of the vertical bore through the boss A³. The two ducts a^3 and A¹⁰ have their axes in the same vertical plane. The boss A² is designed to afford connection for the steam-pipe and the boss A³ to afford connection for an oil-pipe. A discharge-nozzle B is screwed into the forward end of the body, and to the rear end I prefer to attach the tapering terminal or induction-piece C. Steam under pressure and oil under sufficient pressure to cause it to flow into the burner being admitted through the ducts A¹⁰ and a^2 , respectively, the oil flows down the inclined duct a^3 onto the top of the steam-jet issuing from the forward end of the duct A¹⁰ and is carried out through the nozzle and mechanically dispersed and intermixed with the steam as the latter emerges from the end of the nozzle, and more or less completely vaporized by the heat of the steam on and in which it is thus car-

ried. The force of the emerging jet of the intermixed steam and oil vapor draws air through the segmental passages $a' a'$, which is also intermixed with the vapors as they emerge and facilitates combustion. The purpose of the rear or induction terminal C is to afford connection for a pipe which may lead to any preferred source of air or other gas or vapor which it may be desired to intermix with the steam and oil vapors, and to draw by the force of the latter.

In order that the oil as it emerges from the mouth of the duct a^3 may be prevented from spreading indiscriminately over the surface of the metal, as it might, flowing around instead of flowing onto the steam-jet emerging below it, I form upon the face of the bridge A' the C-shaped boss A¹¹, surrounding the mouth of the duct a^3 , except at the lower side, where said boss terminates at the margin of the mouth of the duct A¹⁰, so that the oil as it emerges from the duct a^3 is guided by this boss directly down to the upper side of the steam-jet emerging from the duct A¹⁰ and compelled to be lodged upon and be carried by the latter, as described.

A distinguishing feature of my invention is the mode of its operation in that the oil flows or drips onto the steam-jet, which becomes a vehicle for carrying the oil as well as a motive force for dispersing and spraying it and a heating element for vaporizing it, and in this respect it is distinguished from all prior devices with which I am familiar, and produces, as I am convinced, a better result by reason of this peculiarity than is produced by means more commonly heretofore employed, because the oil is at first upon the exterior instead of upon the interior of the steam-jet, and is not liable, therefore, to become the mere core of a steam-jet, but is, on the contrary, most fully subject to the dispersing force of the steam-jet when the latter strikes the walls of the discharge-nozzle.

I claim—

1. An oil-burner comprising in combination a hollow body, a nozzle having threaded connection with the body and said body having threaded bosses for steam and oil supply connections, and a bridge with a passage therein axial with respect to the body, communicat-

ing with the steam-supply and discharging into the nozzle and an oil-duct in the bridge discharging obliquely into the nozzle above the steam-discharge, air-passages being
5 formed between the bridge and the side walls of the body and opening into the nozzle, substantially as described.

2. An oil-burner having in combination a hollow body and a nozzle, said body having a
10 bridge crossing the hollow thereof and said bridge having a steam-duct leading into one end thereof and discharging into the nozzle coaxially therewith and an oil-duct leading into its other end and discharging into the
15 nozzle obliquely across the steam-discharge, lateral air-passages being formed between the bridge and the sides of the body and opening into the nozzle, substantially as described.

3. An oil-burner having in combination a
20 hollow body and a discharge-nozzle having a screw-threaded connection therewith, said body having screw-threaded bosses, one pro-

jecting upwardly and the other downwardly and providing connections for oil and steam supply respectively, a vertical bridge cross- 25 ing the hollow interior of the body and having an oil-duct therein discharging into the said nozzle obliquely across the axis thereof and a steam-passage discharging axially with respect to the said nozzle, and an air-induc- 30 tion nozzle having a screw-threaded connection with the body back of the bridge an air-passage being formed between the bridge and the body and communicating with the interior of the induction and discharge nozzles, 35 substantially as described.

In testimony whereof I have hereunto set my hand, in the presence of two witnesses, at Chicago, Illinois, this 30th day of November, 1892.

J. R. ARMSTRONG.

Witnesses:

CHAS. S. BURTON,
JEAN ELLIOTT.