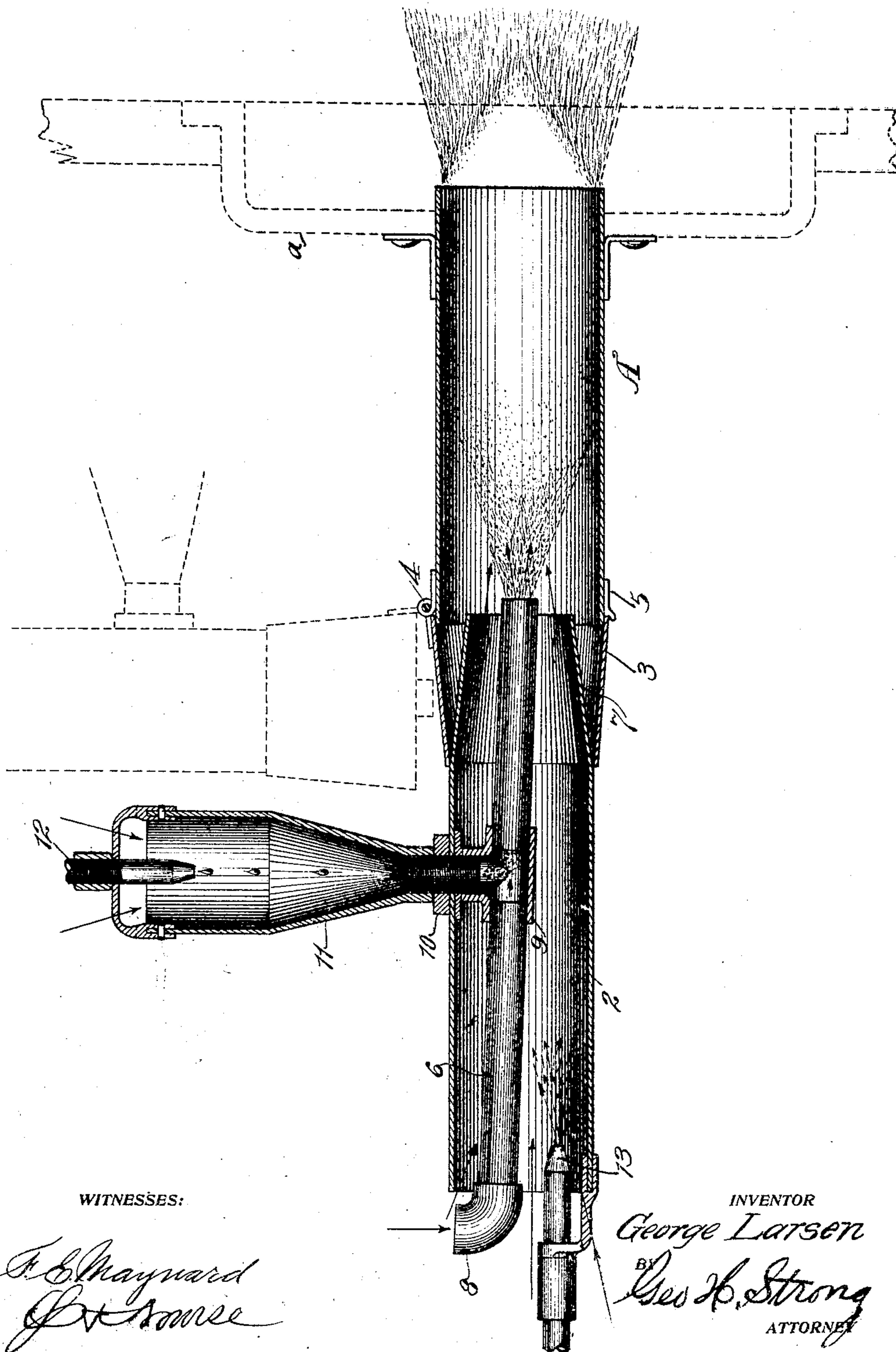


No. 855,857.

PATENTED JUNE 4, 1907.

G. LARSEN.
OIL BURNER.

APPLICATION FILED JAN. 26, 1907.



WITNESSES:

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INVENTOR

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UNITED STATES PATENT OFFICE.

GEORGE LARSEN, OF SAN LEANDRO, CALIFORNIA.

OIL-BURNER.

No. 855,857.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed January 26, 1907. Serial No. 354,303.

To all whom it may concern:

Be it known that I, GEORGE LARSEN, a citizen of the United States, residing at San Leandro, in the county of Alameda and State of California, have invented new and useful Improvements in Oil-Burners, of which the following is a specification.

My invention relates to hydrocarbon burners, and especially to oil burners for use in forges and furnaces of all kinds. Its object is to provide a simple, cheap, practical burner for burning crude oil or distillate, which will produce perfect combustion and give a colorless blue flame of comparatively large volume.

The novelty of this invention resides in certain peculiarities of construction and combination of parts which will be set forth hereinafter and claimed, having reference to the accompanying drawings, in which the figure is a section taken lengthwise through my burner.

A represents a tubular section of relatively large diameter compared with its length, suitably secured to the furnace front or wall A.

2 is a piece of tubing having a flared front end 3 and hinged to the section A at 4, with the flared part 3 adapted to telescope with the end of the section A. The part 2 is adapted to turn upward on its hinges to allow inspection of the interior of either of the parts A or 2; and these two parts are maintained in alinement when in operative position by the engagement of the flared end 3 with the stop 5 on section A.

6 is an oil pipe disposed within the tube 2, and open at both ends with its inner discharge end projecting about half an inch beyond the end of the nozzle 7; which latter is carried by the part 2 and is arranged inside the flared portion 3. The outer end of the tube part 2 is open as is also the outer end of the oil pipe 6; the latter is here shown and provided with an upturned elbow 8 open to the atmosphere. The pipe 6 is supported inside of the tube 2 by suitable means as the T 9 which has its central branch extending through an opening in the top of the tube 2 and is locked in place by a set-nut 10.

The oil hopper 11 screws into the T and the oil from any suitable source of supply is fed through the pipe 12 in suitable quantities into this hopper 11. The oil pipe 6 is arranged at a slight incline downward and forward with respect to the axis of the burner,

so that the oil would naturally gravitate toward the furnace end of the pipe.

13 is an air blast nozzle or pipe arranged outside of the oil pipe and eccentric to the tubing 2 and adapted to discharge into the chamber in the tubing at a point forward of the rear end of the oil pipe 6. The result of this construction is that when compressed air or steam is let in through the nozzle 13 around the oil pipe 6, a powerful suction is created around the front end of the pipe 6. This naturally induces a current of air from the atmosphere through the pipe 6 and the flow of the oil is facilitated, and on being discharged into the mixing chamber A becomes thoroughly atomized and mixed with such quantities of oxygen as to insure the most perfect combustion in the furnace.

In actual practice in numerous instances where I have used this burner, it is found that not only is an appreciable current of air induced through the oil pipe 6, as is apparent by simply placing the hand over the elbow 8, but this induced current produces a swirling action in the pipe and breaks up the oil particles before they even leave the pipe. A certain quantity of air is also induced through the hopper 11. I am thus enabled to get a sufficient oil feed without any pumping.

The contracted inner end 7 of the tube 2 brings the surrounding volume of air into intimate association with the oil; while the enlarged tubular part A incloses what I term the "mixing chamber", and gives ample time and room for perfect atomization; the discharged gases from the burner being ignited inside the furnace and producing a flame of considerable volume and great intensity.

The burner has little or no tendency to heat up and consequently it can be made of heavy tin or sheet iron, with the exception of course of the oil pipe 6. It is manifest however that I can use any suitable material in the construction of my burner and the same may be of any suitable size.

By having the main burner portion hinged to the section A as shown, it enables the part 2 and elements carried by it to be lifted up at any time to clean away any accumulations around the discharge end of the oil pipe 6, or for any other purpose.

The term "air" wherever used in the specification and claims, is intended to include steam or any equivalent vaporizing medium.

It is possible that various changes and

modifications may be made in the invention without departing from the principle involved.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. An oil burner comprising an oil pipe open at both ends and having a suitable oil inlet between its ends, an air pipe surrounding the oil pipe extending parallel therewith and substantially the full length thereof, and inclosing an annular space between it and the oil pipe, said air pipe open at its outer end, a tubular section of relatively larger diameter than the air pipe connected with the front end of the latter and inclosing a mixing chamber, said air pipe and oil pipe both discharging into this mixing chamber, said mixing chamber open at its front end, and means for discharging air or steam under pressure exterior to the oil pipe and into the space inclosed between the air pipe and the oil pipe

and at a point between the ends of the oil pipe and the air pipe and in the direction of the forward end of the oil pipe.

2. In an oil burner, the combination of an air pipe open at the ends, provided with a reduced nozzle portion at its front end, an oil pipe open at both ends disposed within the air pipe and inclined slightly downward and forward, said oil pipe having its front end substantially flush, and concentric with the nozzle of said air pipe, said oil pipe having an oil inlet between its ends, and means for admitting air under pressure into the air pipe to induce a current of air through the oil pipe.

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

GEORGE LARSEN.

Witnesses:

ARTHUR GEORGE LARSEN,
WILLIAM HOWARD DICKINSON.