

F. E. & F. O. STANLEY.
VAPOR BURNER.

APPLICATION FILED JULY 24, 1901.

NO MODEL.

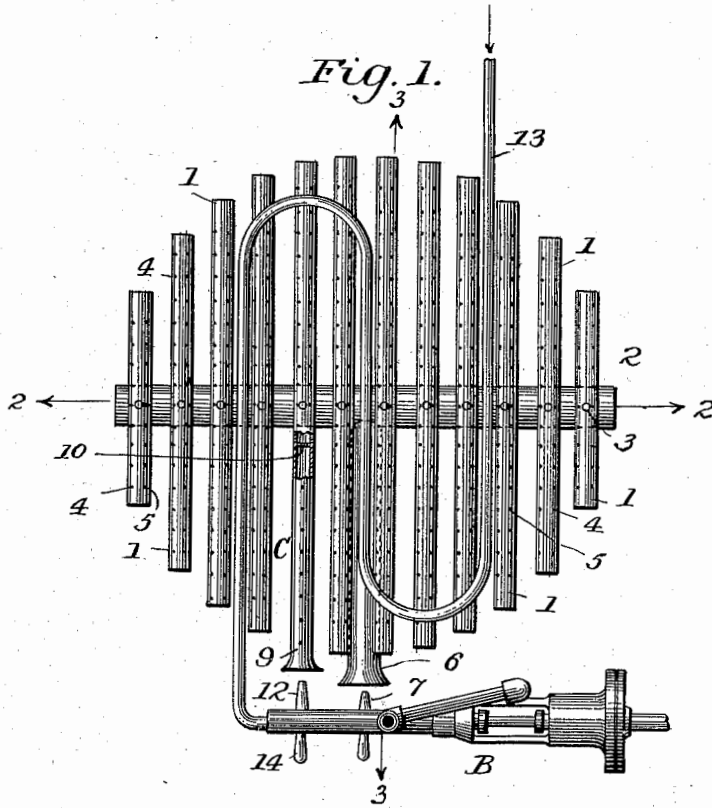


Fig. 2.

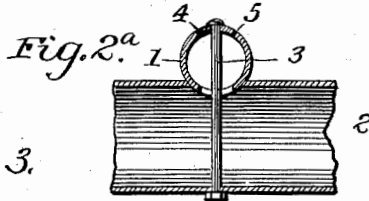
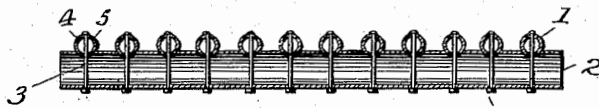
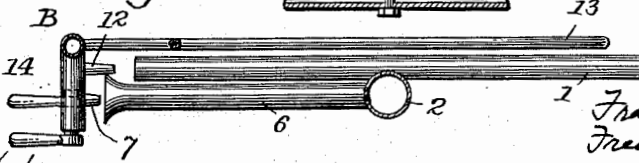


Fig. 3.



Witnesses

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334

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UNITED STATES PATENT OFFICE.

FRANCIS E. STANLEY AND FREELAN O. STANLEY, OF NEWTON,
MASSACHUSETTS.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 750,410, dated January 26, 1904.

Application filed July 24, 1901. Serial No. 69,567. (No model.)

To all whom it may concern:

Be it known that we, FRANCIS E. STANLEY and FREELAN O. STANLEY, citizens of the United States, residing at Newton, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Vapor-Burners, of which the following is a specification.

Our invention relates to that class of vapor-burners where the burning mixture from a mixing-tube is ignited at a series of perforations; and our invention consists in constructing the burner to form a minor chamber communicating with a limited number of the perforations and in providing a separate supply of mixture for this chamber to constitute a pilot-light, as fully set forth hereinafter, and as illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of our improved burner and the supply-pipe and automatic device. Fig. 2 is a section on the line 2 2, Fig. 1. Fig. 2^a is an enlarged detail; Fig. 3, a section on the line 3 3, Fig. 1.

The burner consists of a series of parallel tubes 1, each of which crosses a main tube 2 of larger size, the latter being slotted at the top to afford a rounded seat in which the cross-tube 1 can rest, as shown in Fig. 2, and the two are connected together by a bolt 3. Preferably the parts are brazed where they meet, so as to avoid any possibility of leakage. The tubes 1 are perforated at opposite sides of the center, forming two rows of perforations 4 5, which, as shown, are inclined, so that the gas on each side of the space intervening between the parallel tubes 1 is projected toward the center of the said space, affording a better mixture with the air than if it were projected directly upward.

The mixing-tube 6 communicates with the main tube 2 and is parallel to the tubes 1 and receives the jet of vaporized oil from a nozzle 7 of the well-known automatic regulator B, which is provided with a valve which controls the flow of the gas to the nozzle in the well-known manner except that the gas is cut off completely when the boiler-pressure reaches a predetermined point.

In order that when the gas is thus cut off it may be relighted, we make use of a pilot-light, and we secure this by means of a minor chamber formed, preferably, as a part 9 of one of the tubes 1, being a part separated therefrom by a partition 10, and the end of the tube 9 is open, and there is but a single row of perforations at the top.

A second nozzle 12 is arranged opposite the open end of the pipe 9 and serves to inject a stream of gas thereinto, which mixes with the air and forms a burning mixture and constitutes a pilot-light, and this pilot-light will also constitute a means of maintaining the vaporization of the liquid fuel by extending the conducting-pipe 13 over the main burner A and also adjacent to the supplemental or pilot-burner C, consisting of the perforated pipe 9, and the conducting-pipe extends to the regulator B at the end adjacent to the nozzle 12, so that the regulator does not cut off the flow to said nozzle, which flow, however, may be cut off by means of a proper valve 14.

By thus providing a mixing-tube and a pilot-light throwing a constant flame onto the vaporizing-tube at all times, even when the main burner is completely cut off, we are able to maintain such a forcible jet of vapor in the pilot-light whenever the main burner is extinguished that the pilot-light cannot possibly be extinguished, as is apt to be the case when the main burner nearly closed by the regulator constitutes the pilot-light.

Without limiting ourselves to the precise construction and arrangement of parts shown, we claim as our invention—

1. A burner having a series of parallel perforated pipes communicating with a transverse mixing-tube, a section of one of said perforated pipes closed at the inner end and open at the outer end to constitute the mixing-tube of a pilot-burner, and vapor-nozzles one opposite and arranged to supply vapor to each mixing-tube, substantially as set forth.

2. The combination in a burner, of a series of parallel perforated separated tubes 1, a mixing-tube communicating therewith, a partition in one of the tubes 1 and a nozzle for supplying vapor to the end of the said tube having

the partition, and a conducting-pipe communicating with the nozzle and extending adjacent to the last-named tube, substantially as set forth.

5 3. The combination in a burner, of a series of parallel perforated separated pipes 1, a mixing-tube communicating therewith, a partition in one of the tubes 1, and a nozzle for supplying vapor to the end of the said tube having
10 the partition, substantially as set forth.

4. The combination in a vapor-burner, of a series of perforated parallel but separated tubes, one of said tubes open at the end and

provided with a partition, a nozzle arranged opposite the open end of said tube to constitute the latter a mixing-tube, and a mixing-tube for the main portion of the burner, substantially as set forth. 15

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses. 20

FRANCIS E. STANLEY.
FREELAN O. STANLEY.

Witnesses:

J. W. BACON,
JAS. H. GILKEY.