(No Model.)

B. FASOLDT.

HYDROCARBON BURNER.

No. 250,719. Patented Dec. 13, 1881.

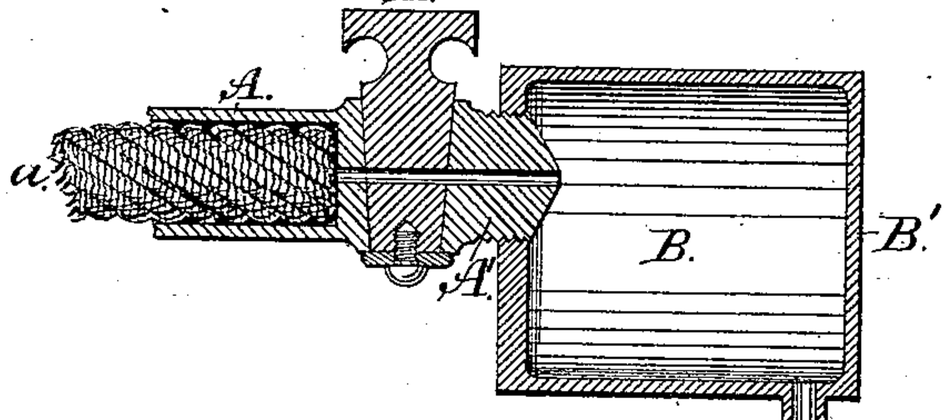

FIG. 1.

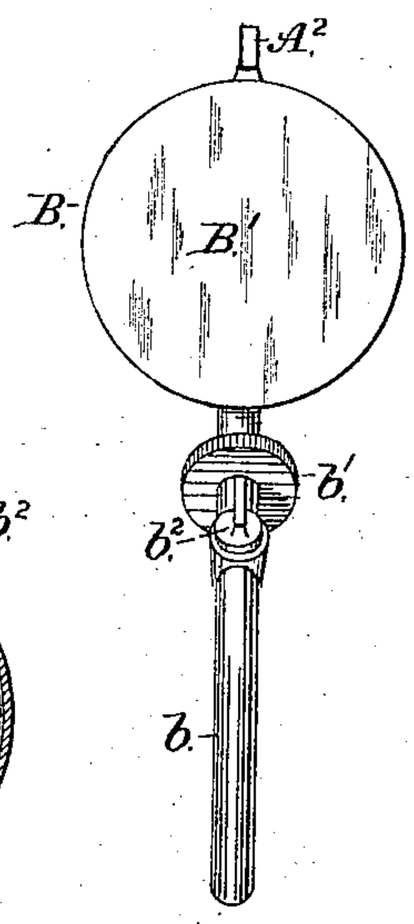

FIG. 2.

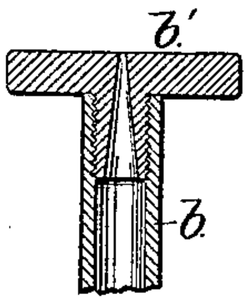

FIG. 3.

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BERNARD FASOLDT, OF ALBANY, NEW YORK.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 250,719, dated December 13, 1881.

Application filed December 7, 1880. (No model.)

To all whom it may concern:

Be it known that I, BERNARD FASOLDT, of the city and county of Albany, and State of New York, have invented certain new and useful Improvements in Burners for Hydrocarbon Vapor, of which the following is a specification.

The object of my invention is to provide a safe and efficient burner for burning the vapor of hydrocarbons or other inflammable liquids for illuminating purposes, and in such manner that no smoke or disagreeable odors will be evolved therefrom during the process of combustion. This object I attain by means of the device illustrated in the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a longitudinal section of my improved single-light burner; Fig. 2, an end elevation of the same; Fig. 3, an enlarged section of the end of the vapor-tube and nipple.

As represented in Figs. 1 and 2 of the drawings, A is the wick tube or feeder, containing the wick *a*, that fills the bore of the tube. Said tube is connected to a reservoir containing liquid hydrocarbon; or one or more of them may be attached to a system of pipes leading from a large reservoir for containing a supply for feeding any required number of burners. At its outer end the said tube is provided with a nipple, A′, containing a minute longitudinal bore, in which is placed a stop-cock, A^2, for governing the flow of the liquid from the nipple. The nipple A′ is inserted in one end of the retort B, into which the liquid, after passing through the wick *a*, enters in minute quantities, and is therein vaporized and expanded by the heat of the flame, as hereinafter explained.

A small tube, *b*, is attached to the retort B, for conveying the heated vapor from the retort and discharging it toward the place of ignition. Said tube, after extending forward, is bent back, so that an extension of its center line will strike the head B′ of the retort at or near its center, and in such manner that the plane of said head and the discharge-line of the tube *b* will form an angle, as shown in Fig. 1. The outer end of the tube *b* is provided with a detachable nipple, *b′*, containing a minute orifice, through which the heated vapor issues. A stop-cock, b^2, is placed in the tube *b*, for the purpose of controlling the discharge of the heated vapor.

The operation of my device is as follows: The stop-cock A^2 is opened to permit the liquid hydrocarbon that is emitted from the wick *a* to enter the retort B in minute quantities. A light is applied to the retort for the purpose of heating it and converting its liquid contents into a gaseous vapor, which, as it becomes expanded by the heat, quickly acquires sufficient pressure to issue from the orifice of the nipple *b′* with such force and velocity that no ignition of the vapor can be maintained at the end of the nipple. By the impetus of its discharge the current of heated vapor is carried onward until it strikes the head B′ of the retort, whereby its force is broken, and the vapor, spreading out into a thin film, is there ignited to produce a smokeless and odorless flame of great brilliancy against the head of the retort, where it is utilized for continuing the conversion of the liquid hydrocarbon into a gaseous vapor.

I am aware that hydrocarbon-burners have been used heretofore; but as formerly constructed such burners emit the vapor of the hydrocarbon in its natural state without pressure, and by them the flame is formed directly at the mouth of the orifice through which the vapor escapes, and the combustion is so imperfect that much smoke and many disagreeable odors proceed therefrom; and those earlier burners differ from mine both in their construction and mode of operation, for the reason that by them the gaseous vapor cannot be generated to produce pressure, as in my invention, in which the pressure produced by the expansion of the vapor by the heat evolved from the flame burning in contact with the retort forms a necessary and distinguishing feature.

I am also aware that heretofore hydrocarbon-burners have been constructed to generate a gaseous vapor under pressure by means of the flame produced by igniting such vapor acting upon a vapor-chamber filled with fine wires and having a flame-shaped (bent) face-plate attached thereto, and provided with a nipple whose line of discharge ran parallel to the main body of the face-plate, said nipple being provided with an overlying strip of metal, against which the vapor, as it escaped from the nipple, impinged and was (by the said strip) deflected against the aforesaid face-plate; but, as conceded in the description of that burner, the force of the jet of vapor was broken by the

strip of metal over the nipple. Consequently it (the vapor) did not reach the face-plate in its full force, as in my burner. Its pressure was spent, and the flame produced was smoky and attended with unpleasant odors.

I claim as my invention—

1. In a hydrocarbon-burner, the vapor-tube *b*, provided with a stop-cock, b^2, and arranged in relation to the retort B as herein shown and described—that is to say, so that the line of discharge from said vapor-tube will form an acute angle with the head B′ of said retort, as and for the purpose herein specified.

2. The combination, in a hydrocarbon-burner, of the feeder A, provided with a nipple, A′, and stop-cock A^2, for regulating the supply of liquid hydrocarbon, as herein described, with the retort B, provided with a vapor-tube, *b*, having a stop-cock, b^2, for controlling the discharge of the gaseous vapor, the whole being constructed and arranged to operate as herein specified.

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