

No. 666,785.

Patented Jan. 29, 1901.

J. F. WILLIAMS.

GENERATOR FOR HYDROCARBON BURNERS.

(Application filed June 5, 1899.)

(No Model.)

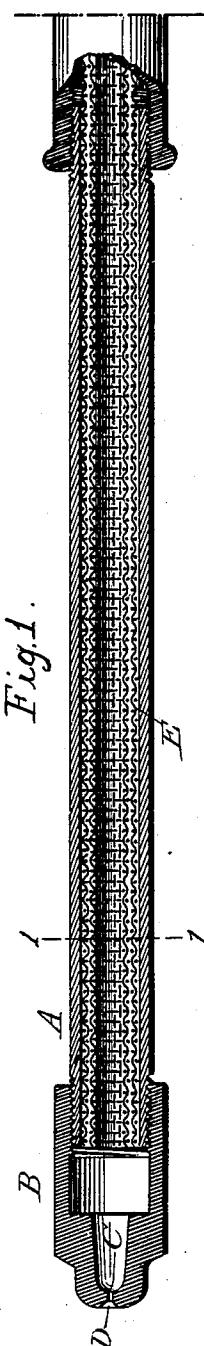


Fig. 1.

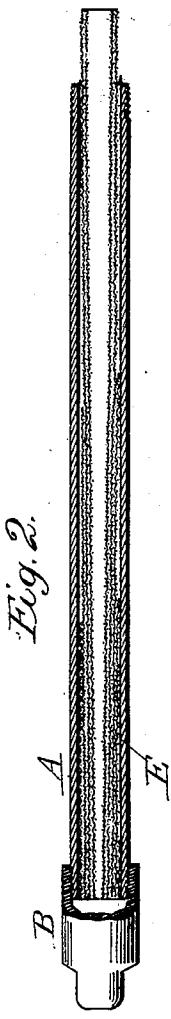


Fig. 2.

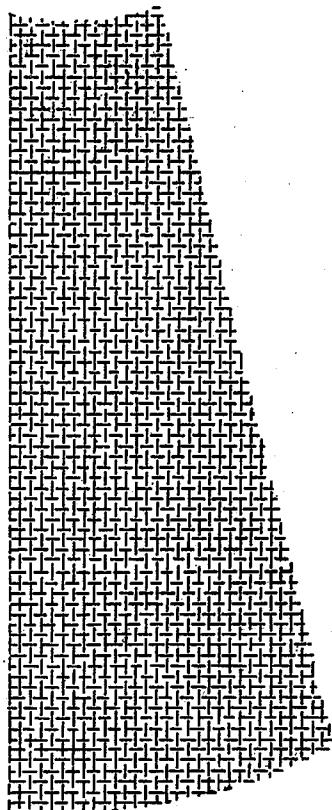


Fig. 4.

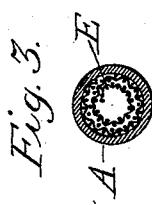


Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

JOHN F. WILLIAMS, OF KANSAS CITY, MISSOURI.

GENERATOR FOR HYDROCARBON-BURNERS.

SPECIFICATION forming part of Letters Patent No. 666,785, dated January 29, 1901.

Application filed June 5, 1899. Serial No. 719,491. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. WILLIAMS, a citizen of the United States, residing at Kansas City, in the county of Jackson and State 5 of Missouri, have invented certain new and useful Improvements in Generators for Hydrocarbon-Burners, of which the following is a specification.

My present invention pertains to improvements in generators for hydrocarbon-burners, the construction and advantages of which will be hereinafter set forth, reference being had to the accompanying drawings, wherein—

Figure 1 is a longitudinal sectional view of 15 the vaporizing tube or chamber; Fig. 2, a similar view of a slightly-modified form; Fig. 3, a transverse sectional view on the line 1 1 of Fig. 1, and Fig. 4 a plan view of the wire-gauze which is employed in the construction 20 illustrated in Fig. 2.

The object of my invention is to so construct the vaporizing-tube of a hydrocarbon-burner that although the hydrocarbon is fed directly to the inner surface or face thereof, yet the 25 sudden explosions which usually take place are entirely prevented.

The construction also provides an unobstructed passage from the tip back to the source of supply of hydrocarbon, whereby full 30 pressure of the liquid hydrocarbon is permitted to act directly against the vapor in the bore of the generating tube or chamber.

The present construction also serves the useful function of providing a means which 35 allows the tube to be readily cleaned out when occasion requires.

The vaporizing-tube herein shown and described is designed to be used in that type of vapor-burners wherein the vaporizing tube or 40 chamber passes over the burner or in such close proximity thereto that the heat issuing from the burner will vaporize the hydrocarbon passing into and through the vaporizing-tube.

Referring to the drawings, A represents the vaporizing tube or chamber, which in the form shown comprises simply a section of pipe having a cylindrical bore. Upon the outer end of 45 said pipe A there is mounted a tip B, provided with a restricted outlet C, through which the vaporized hydrocarbon or gas passes. In the

form shown in Fig. 1 it will be noted that said tip upon its outer end is provided with a countersunk depression D, which facilitates the cleaning out of said opening C should the 55 same become clogged, before the lamp is put in operation, by any foreign matter passing into said opening along with the vapor or gas. Mounted within said vaporizing tube or chamber is a cylinder E, formed of wire-gauze, the 60 outer face of said cylinder lying next to and in direct contact with the inner wall of the vaporizing chamber or tube. As will be seen most clearly upon reference to Fig. 1, said cylinder has a free and unrestricted passage 65 extending through the length thereof, and in actual construction of the device I have made said gauze cylinder to extend throughout the length of the vaporizing-chamber, or nearly so. Said gauze cylinder may be readily formed by taking a piece of wire-gauze of the proper length and width and rolling it up upon a wire, so that the external diameter of the cylinder will be approximately equal to the interior diameter of the vaporizing tube 75 or chamber and make a close fit therewith. In the form shown in Figs. 1 and 3 the interior bore of said gauze cylinder is of the same diameter throughout, whereas in Fig. 2 I have shown a construction wherein the interior 80 bore of the cylinder decreases toward the discharge end of the vaporizing-chamber. This latter construction of the cylinder may be readily formed up out of a piece of gauze cut to the shape shown in Fig. 4.

The operation of the device is as follows: As the liquid hydrocarbon flows into the vaporizing tube or chamber it naturally follows the gauze and is carried around thereby to the entire surface of the vaporizing tube or 90 chamber. The liquid hydrocarbon is thus presented in the most extended manner possible, and as the particles of the hydrocarbon liquid are transformed into vapor the sudden explosions which take place are entirely 95 checked by reason of the gauze.

It has been found by actual test that a vaporizing-chamber constructed in the manner herein set forth will give better results than one which is plain throughout, the gauze tending, as just stated, to absorb the shock of the explosion or to hold the newly-formed vapor 100

in place and permit it to pass out through the opening C in a steady stream and not in a series of puffs or spurts.

Aside from serving to distribute the oil and regulate the flow of the generated vapor or gas the cylinder also serves as a means of collecting foreign particles which pass into the chamber along with the oil, and by unscrewing said chamber from its support or removing the tip B therefrom said cylinder may be withdrawn and cleansed when occasion requires. It may be unrolled, cleaned, and re-rolled and again inserted, or it may be cleaned without the necessity of unrolling it.

From the construction shown in Fig. 2 it will be seen that the restricted passage or bore of the cylinder serves as an additional means for preventing the generated gas or vapor from passing out of the tip in puffs, since the gas would naturally force its way backward rather than through the restricted opening toward the discharge-outlet. Said form is equally as well adapted to be withdrawn from the generating tube or chamber and cleansed.

The amount of pressure exerted against the minute opening in the tip depends entirely on the construction of the apparatus employed. By using air-pressure on top of the liquid in the reservoir any desired pressure can be obtained, and by using gravity only the pressure will always be the same and depends entirely on the height of the reservoir above the generating-tube.

The important feature of this invention is the use of the cylindrical wire-gauze to eliminate the explosions and furnish an unobstructed passage from the reservoir to the tip.

Having thus described my invention, what I claim is—

1. A generating tube or chamber for hydro-carbon-burners, comprising an outer chamber and a filling of gauze placed therein against its inner wall, said filling having an opening extending longitudinally therethrough, substantially as described. 40

2. In a hydrocarbon-burner, the combination of a generating tube or chamber; and a filling of wire-gauze mounted therein against the inner wall thereof, and having an open space or chamber extending longitudinally 50 therethrough.

3. In a hydrocarbon-burner, the combination of a vaporizing tube or chamber; a cylinder of wire-gauze mounted therein and adapted to come into close contact with the inner wall of the tube, substantially as and for the purpose described. 55

4. In a hydrocarbon-burner, the combination of a generating tube or chamber; a cylinder of wire-gauze mounted therein and adapted to come into close contact with the inner wall thereof, said cylinder being removable, substantially as and for the purpose described. 60

5. In a hydrocarbon-burner, the combination of a generating tube or chamber; a cylinder of wire-gauze mounted therein and adapted to come into close contact with the inner wall thereof, said cylinder having a decreasing interior area toward the discharge 70 end of the tube.

In witness whereof I hereunto set my hand in the presence of two witnesses.

JOHN F. WILLIAMS.

Witnesses:

M. M. SMEETMAN,
W. D. SNYDER.