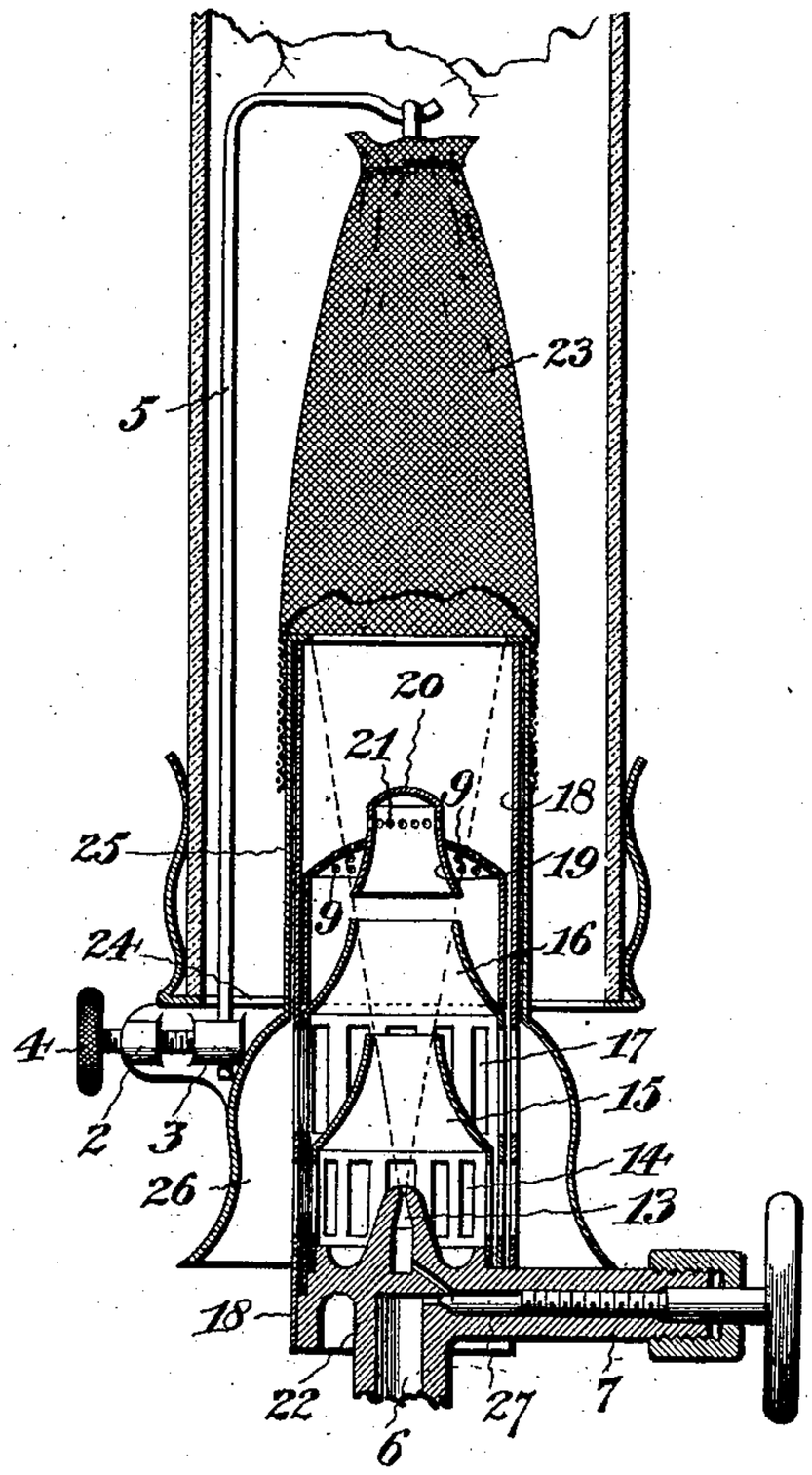
No. 685,271. Patented Oct. 29, 1901.

W. GLITSCH.

MEANS FOR GENERATING AND BURNING GAS.

(Application filed July 21, 1899.)

(No Model.)



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UNITED STATES PATENT OFFICE.

WALTHER GLITSCH, OF ZURICH, SWITZERLAND.

MEANS FOR GENERATING AND BURNING GAS.

SPECIFICATION forming part of Letters Patent No. 685,271, dated October 29, 1901.

Application filed July 21, 1899. Serial No. 724,706. (No model.)

To all whom it may concern:

Be it known that I, WALTHER GLITSCH, a citizen of the Republic of Switzerland, residing at Zurich, Switzerland, have invented new and useful Improvements in and Connected with Means for Generating and Burning Gas, (for which I have applied for a patent in Switzerland May 10, 1899; in Belgium May 16, 1899; in Italy May 16, 1899; in France May 17, 1899; in Austria May 19, 1899; in Germany May 19, 1899; in Hungary May 27, 1899; in Russia May 28, 1899; in Sweden June 7, 1899, and in Norway June 26, 1899,) of which the following is a specification.

My invention has relation to vapor generators and burners for the vaporization and combustion of more or less vaporizable combustible liquids, such as liquid hydrocarbons and other similar liquids for illuminating or heating purposes.

I have illustrated my invention in its application to an incandescible illuminating device by a vertical sectional view.

In said drawing, 22 indicates a suitable casting provided with a liquid-fuel-supply branch 6 and with a lateral branch 7, in communication therewith through a small port controlled by a needle-valve 27, and above said supply branch the said casting is provided with an injector-nozzle 13, in communication with the aforesaid lateral branch through a narrow passage, also controlled by the needle-valve 27.

The substantially cylindrical body of the casting is stepped to form bearings or seats for the lower ends of two concentric hollow cylinders 15 and 16, and on the lower part of said cylindrical body of the casting is mounted the burner-tube proper, 18. To the upper end of the burner-tube 18 is secured a sleeve 25, whose lower end terminates in a bell-shaped air-collector 26, and to said sleeve 25 above the collector is secured the gallery 24 for the chimney, said gallery having a lateral projection provided with two bearings 2 and 3, bearing 2 being screw-threaded internally for a binding-screw 4, while bearing 3 is perforated horizontally and vertically, the vertical perforation serving as a seat for the rod 5, from which the incandescible mantle 23 is suspended, while the binding-screw 4 projects into the horizontal perforation and impinges upon the said rod to lock it in position, thus providing a simple means for adjusting the mantle on the tube 25.

The cylinders 15 and 16 have each a conical outlet, and in the cylindrical body thereof are formed vertical air-inlet slots 14 and 17, respectively, the slots 17 being in register with corresponding slots in the burner-tube 18, while the slots 14 in cylinder 15 are in register with corresponding slots in said burner-tube through a second series of vertical slots in cylinder 16 below slots 17, the two cylinders 15 and 16 being fitted one within the other, as shown. On the cylinder 16 is arranged a hood 19, the dome or arched top of which is provided with perforations 9, and axially in said dome is seated the burner-tip 20, provided with circumferentially-disposed orifices 21 and with a flaring inlet.

The cylinders 15 and 16 constitute the mixing-chambers, while the hood 19 constitutes the distributing-chamber. The contracted outlets of the cylinders 15 and 16 and the flaring inlet of the burner-tip 20 are so spaced and of such cross-sectional areas as to conform or substantially conform to the circumference of the cone of dispersion of the jet of vapor issuing from the injector-nozzle 13.

In starting the generator and burner heat is applied to the casting 22 in any desired manner, and as soon as vapor issues from the burner-tip 20 it is ignited, the flame being directed laterally against the inner surface of the burner-tube not only by the circumferential orifices in the burner-tip, but also by the orifices in the dome of the distributing-chamber, resulting in a flame of substantially the form of a hollow cylinder, which, impinging on the walls of the mantle 23, heats the same to incandescence. The intense heat thus generated in the upper end of the burner-tube is transmitted thereby to the casting 22 as well as to the mixing-chambers, and this heat, together with the partial vacuum produced in said mixing-chamber, induces a lively flow of air from the collector 26 to said mixing-chambers, and as said collector becomes itself more or less heated the air concentrated thereby is also heated before it enters the mixing-chamber, perfect combustion being the result.

Having thus described my invention, what

I claim as new therein, and desire to secure by Letters Patent, is—

1. In a vapor generator and burner, the combination with a liquid-fuel injector, a burner-tube mounted thereon and a burner within said tube above the injector; of intermediate mixing-chambers each provided with air-inlets and with contracted outlets, the inlet of the burner and the outlets of the mixing-chamber being of such cross-sectional areas and at such distances from each other and from the burner as to substantially conform to the circumference of the cone of dispersion of the vapor issuing from the injector, for the purpose set forth.

2. In a vapor generator and burner, the combination with a liquid-fuel injector, a burner-tube mounted thereon and a burner within said tube having circumferentially-disposed burner-orifices and a flaring inlet; of intermediate mixing-chambers each provided with air-inlets and with contracted outlets, the inlet of the burner and the outlets of the mixing-chamber being of such cross-sectional areas and at such distances from each other and from the burner as to substantially conform to the cone of dispersion of the vapor issuing from the injector, for the purpose set forth.

3. A vapor generator and burner comprising an injector, superposed flaring mixing-chambers, a hood above the latter provided with burner-orifices arranged to project flame radially, a burner-tube surrounding said mixing-chambers and hood, and an incandescible mantle suspended over the burner-tube, substantially as set forth.

4. A vapor generator and burner comprising an injector, superposed flaring mixing-chambers, a hood above said chambers provided with orifices in its arched top plate, a burner seated axially in said top plate and provided with circumferentially-disposed orifices, a burner-tube containing the aforesaid appliances and an incandescible mantle suspended above the burner-tube, substantially as set forth.

5. A vapor generator and burner comprising an injector, superposed flaring mixing-chambers, a hood above said chambers having orifices in its arched top, a burner seated axially in said top and having a flaring inlet and circumferentially-disposed orifices, a burner-tube containing the aforesaid appliances, the tube or sleeve 25 secured to said burner-tube, and an incandescible mantle suspended above the burner tube and sleeve and fitting the latter, substantially as set forth.

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

WALTHER GLITSCH.

Witnesses:

MORITZ VEITH,

A. LIEBERKNECHT.