

No. 641,802.

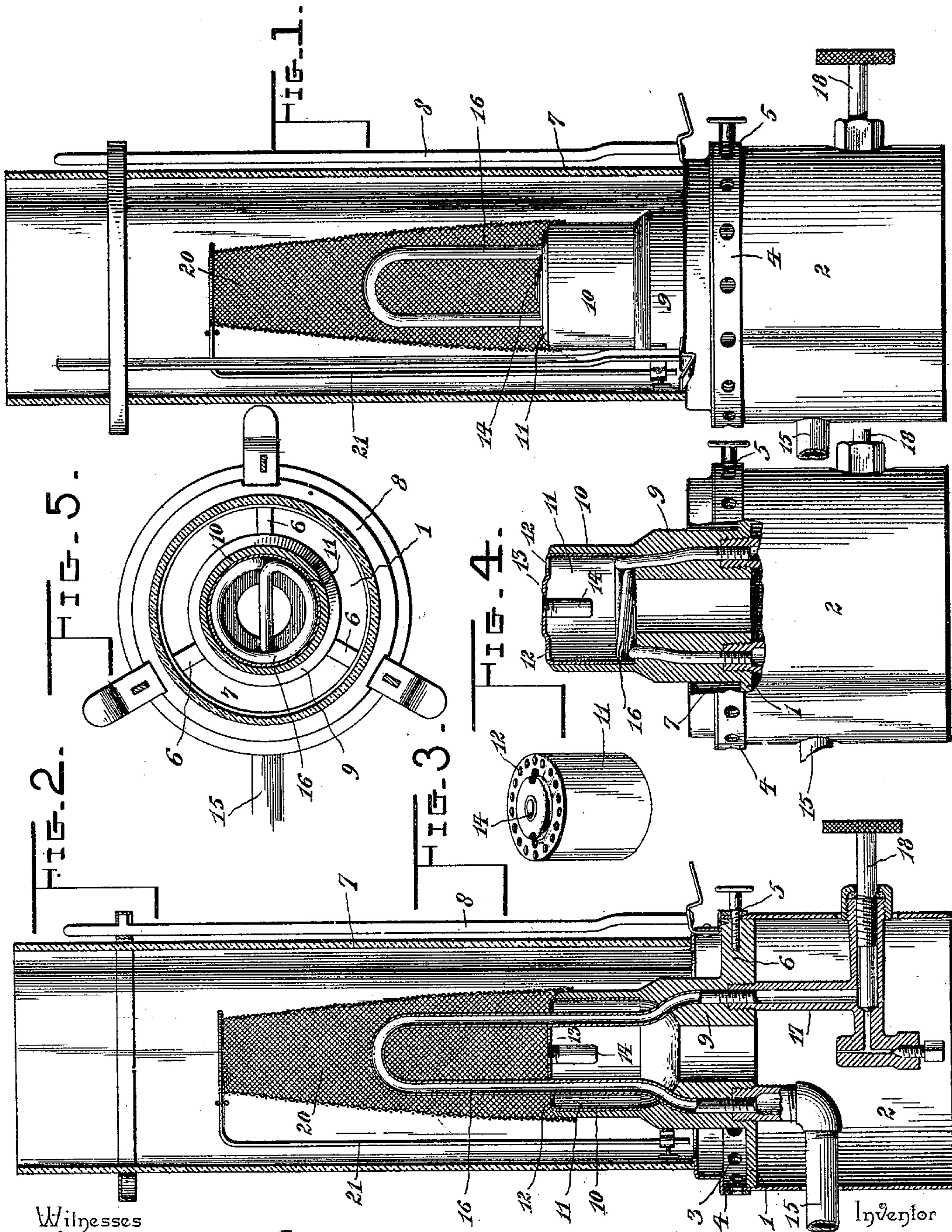
Patented Jan. 23, 1900.

W. SCOTT.

BURNER.

(Application filed July 25, 1898.)

(No Model.)



Witnesses
John F. Deufferweil
[Signature]

By *his* Attorneys.

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UNITED STATES PATENT OFFICE.

WILLIAM SCOTT, OF KANSAS CITY, MISSOURI.

BURNER.

SPECIFICATION forming part of Letters Patent No. 641,802, dated January 23, 1900.

Application filed July 25, 1898. Serial No. 686,861. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SCOTT, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented a new and useful Burner, of which the following is a specification.

My invention relates to burners, and particularly to a device designed for use in connection with gasolene, but also adapted for petroleum or other crude oils and for commercial gas; and the object in view is to provide a simple, compact, and efficient construction and arrangement of parts adapted to burn gas economically to produce the maximum illuminating power, and also when used in connection with liquid fuels to vaporize the same, and, furthermore, to provide simple means for controlling the feeding of air to the point of combustion.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a side view, partly in section, of a lamp having a burner and vaporizing devices constructed in accordance with my invention. Fig. 2 is a central vertical section of the complete apparatus. Fig. 3 is a detail view in perspective of the burner-cap. Fig. 4 is a sectional view showing a slightly-modified arrangement of conveyer-tube. Fig. 5 is a plan view, partly in section, of the modification illustrated in Fig. 4 to show the disposition of the looped intermediate portion of the conveyer-tube.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

In the preferred construction of my invention, 1 designates a base which is fitted within the upper end of a sleeve or shell 2, provided near its upper edge with a series of air-inlet openings or perforations 3, controlled by an adjustable valve-ring 4, provided with a number of openings or perforations corresponding with the air-inlet openings and adapted to be adjusted to partially or wholly open or close the same. Set-screws are employed to secure the sleeve or shell to the base and at the same time secure the ring at the desired adjustment, said ring being slotted, as shown at 5, to receive the set-screws. The upper surface of the base is cut away between

upstanding lugs 6 to allow a free communication of air to the space above the base and within the chimney 7, which may be held in operative position by means of a frame or gallery 8.

The base is provided with a reduced upward extension 9, which at 10 is still further reduced to form a burner-tube, and the bore of this burner-tube is extended downwardly through the base and its upward extension 9 to communicate with the interior of the sleeve or shell 2. In the construction illustrated the base, with its extension 9, and the burner-tube 10 are formed in a single casting; but it will be understood that this feature is variable, as in practice it may be preferable to form the burner-tube separate from and fitted removably in the base extension, and therefore I do not desire to be limited to the construction thereof in a single piece, as illustrated.

Fitted upon the upper end of the burner-tube is a burner-cap 11, which is shown as having its barrel arranged within the burner-tube; but it may be fitted exteriorly thereof, if preferable, said burner-cap being provided in its top with a series of outlet or burner openings 12 and at its center with a larger opening 13, in which is arranged a deflecting-pin 14, said pin having a rounded lower end disposed in the upward path of movement of gas passing to the point of ignition. Said deflecting-pin is preferably fitted for removal in the central opening of the burner-cap, as by threading the same to engage with the threaded wall of said opening.

The supply-tube 15 for gas or for a liquid form of fuel enters the sleeve or shell depending from the base either at its lower end or, as illustrated in the drawings, through a side opening thereof, and is threaded upon one end of a conveyer-tube 16, which extends upwardly through the base and burner-tube and thence downwardly to communicate with the casing 17 of a regulating-valve 18 of the needle type, by which the flow of gas to the injector or discharge nozzle 19 is controlled. This nozzle is disposed axially in alinement with the vertical opening through the base and the bore of the burner-tube, and hence when the regulating-valve is open to allow the escape of gas the latter is projected axially through said central opening of the base and into the burner-tube, where it comes into con-

tact with the lower extremity of the deflecting-pin and is spread to escape through the burner-openings in the cap. This contact of the gas with the deflecting-pin not only spreads the fuel so as to produce a flame of the desired diameter, but also causes an intermixture of air or other combustion-supporting fluid, whereby as the gas escapes through the burner-openings it is in condition for immediate ignition. A further supply of combustion-supporting agent is admitted through the inlet-openings controlled by the above-described regulating-ring and is communicated to the outside of the flame.

The looped portion of the conveyer-tube 16 may, as illustrated in the drawings, be arranged above the burner-cap, the arms thereof passing through suitable openings in the burner-cap at opposite sides of the central opening, and hence within the mantle 20, (upheld by a suitable support 21,) as shown in Figs. 1 and 2, or within the burner-tube, as illustrated in Fig. 4, the former arrangement being preferable when the burner is used in connection with gasolene or other fluid fuel to be converted during its passage through the lamp into vapor and the latter arrangement being preferable when the device is used in connection with commercial gas or other fuel which does not require to be converted in its passage through the lamp.

The above-described arrangement of the looped intermediate portion of the conveyer or vaporizing tube 16 within the mantle, and hence above the burner-cap, provides for the prompt vaporization of fuel in its passage from the supply-pipe to the injector-nozzle, said looped portion of the tube being constantly exposed to the heat of the flame at the point of combustion, whereas with the arrangement of the conveyer-tube with its looped portion within the burner-tube it will be seen that the contents of the former are less exposed to the heat of the burner, but are sufficiently exposed to insure an efficiently inflammable condition of fuel.

The portions of the sides or arms of the conveyer-tube when extended above the plane of the burner-cap are parallel, whereby when it is desired to displace the burner-cap in order to cleanse the same or rearrange the parts of the lamp it is simply necessary to slide the cap upwardly upon said parallel portions of the sides or arms of the loop. The removability of this cap provides for access to both ends of the burner-tube or that vertical axial passage through the lamp through which the gas after leaving the nozzle is projected.

As the lamp embodying my invention is designed especially for burning gasolene and hydrocarbon oils, it will be understood that the preferable arrangement of the conveyer-tube is with its looped intermediate portion located above the plane of the burner-cap, as illustrated in Figs. 1 and 2, whereby the fuel in its passage from the supply-tube to the nozzle is vaporized and is projected into the

burner-tube in condition for immediate combustion. By the use of the spreader 14 in the path of the stream of fuel projected from the single-orificed injector-nozzle the air and vapor will be more thoroughly mixed before issuing through the burner-cap.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. A lamp having a burner comprising a base provided with a central vertical opening, a burner-tube supported by said base and having a perforated cap, an injector-nozzle arranged below the base in axial alinement with the burner-tube, a sleeve or shell depending from the base and provided, in connection with the space above the base, with air-inlet openings, a ring adjustably fitted on the sleeve or shell and having openings adapted to register with those of the latter, a conveyer-tube having the terminals thereof fitted in the said base on opposite sides of the central opening in the latter, a supply-tube attached to one terminal of the conveyer-tube, a casing connected to the injector-nozzle and also to the opposite terminal of the conveyer-tube, and a valve controlling an opening through the said casing and the injector-nozzle.

2. A burner having a base provided with a central vertical opening, a vertical tube supported by said base and having a perforated cap, an injector-nozzle arranged below the base in axial alinement with the burner-tube, a sleeve or shell depending from the base and provided, in communication with the space above the base, with air-inlet openings, and a ring adjustably fitted upon the sleeve or shell and provided with openings adapted to register with those of the sleeve or shell, said ring being fitted for rotary adjustment, substantially as specified.

3. A lamp having a base provided with a central vertical opening and with a peripheral series of upstanding lugs, a burner-tube rising from the base and fitted with a perforated cap, an injector-nozzle located below the base in axial alinement with the burner-tube, a sleeve or shell secured to the periphery of the base and depending therefrom, and provided in the plane of said lugs of the base with air-inlet openings, and an adjustable ring fitted upon the sleeve or shell and provided with openings adapted to register with the air-inlet openings, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM SCOTT.

Witnesses:

CHAS. E. TIDD,
PAUL MERRITT.