

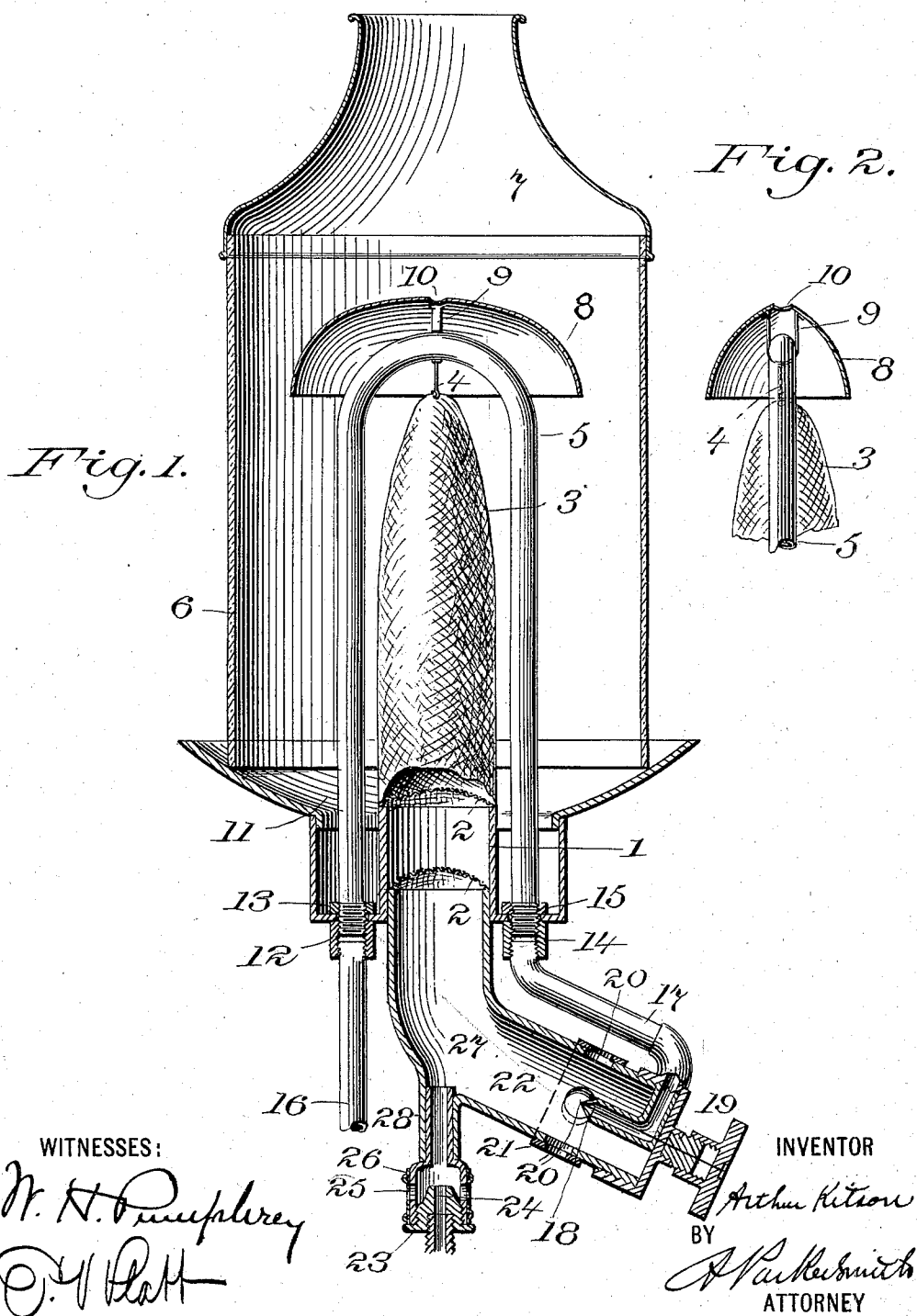
No. 608,051.

Patented July 26, 1898.

A. KITSON.
VAPOR BURNING APPARATUS.

(Application filed Aug. 21, 1897.)

(No Model.)



UNITED STATES PATENT OFFICE.

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VAPOR-BURNING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 608,051, dated July 26, 1898.

Application filed August 21, 1897. Serial No. 649,008. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR KITSON, a sub-
ject of the Queen of Great Britain, residing at
Philadelphia, in the county of Philadelphia
and State of Pennsylvania, have invented cer-
tain new and useful Improvements in Vapor-
Burning Apparatus; and I do hereby declare
the following to be a full, clear, and exact de-
scription of the invention, such as will enable
others skilled in the art to which it appertains
to make and use the same.

My invention relates generally to vapor-
burning apparatus and is more specifically
designed to produce a lamp in which the va-
por of kerosene-oil or other hydrocarbons may
be used in coöperation with an incandescent
mantle to produce a steady and intense light
at small cost and which may be mounted on
an ordinary gas-fixture, so that a gas-flame
may be employed to heat the mantle and vapo-
rizing-tube to the necessary temperature for
vaporizing the oil in starting the lamp.

Figure 1 is a vertical central section of my
improved apparatus, and Fig. 2 is a detailed
cross-section showing the heat-reflector and
its support.

Throughout the drawings like reference-fig-
ures refer to like parts.

1 represents the ordinary form of burner
for consuming vapor mixed with air, having
the wire-gauze 2 located therein. 3 repre-
sents the incandescent mantle, mounted over
said burner and preferably supported by the
hook 4, depending from the vaporizing-tube
5, passing over the burner. 6 represents the
ordinary glass globe of the lamp, supported
on the cup 11 and supporting any suitable
chimney 7.

To concentrate the heat both of radiation
and convection upon the vaporizing-tube, I
employ any convenient form of heat reflector
or deflector 8, which is supported by the
bracket 9 or other convenient apparatus from
the vaporizing-tube and has one or more out-
lets 10 for the upward-flowing gases of com-
bustion.

The vaporizing-tube 5 is preferably made
U-shaped, as shown, and overarches the
burner, its lower ends being supported in the
cup 11 or other projection from the burner

by passing the same through openings in said
cup and holding them in proper adjustment
by means of the nuts 12, 13, 14, and 15 or other
suitable devices, as shown.

I preferably prolong the lower nuts 12 and
14, so as to make them "unions," connecting
the vaporizing-tube on one side with the oil-
supply pipe 16 and on the other with the con-
necting-pipe 17, which discharges into the noz-
zle 18, controlled by any suitable form of nee-
dle-valve 19, as shown. This nozzle discharges
into the mixing-tube 22, into which it draws
air through the openings 20, controlled and
graduated by the adjustable ring 21.

I mount my lamp on a gas-bracket by means
of the tip 23, screwed thereon and having the
passage-way 24 for discharging gas up into the
burner 1. Air-inlets 25, controlled and gradu-
ated by the adjustable ring 26, admit air
above said tip and produce a Bunsen-burner
action. I preferably mount the lamp on the
tip by means of the sleeve 28, which slips over
the upper portion 27 of the gas-tip.

The operation of my invention is as fol-
lows: The key of the gas-bracket being open
to admit a supply of gas, the air-inlets 20 are
closed and those 25 opened. The stream of
mingled air and gas is then ignited at the
burner, rapidly heats the mantle 3 to incan-
descence, and the heat given off by said man-
tle and burner heats the vaporizing-tube 5 to
the temperature necessary to vaporize the oil,
which is then admitted through the needle-
valve from the supply-pipe 16. The vapor
passes down through the connecting-pipe 17
to the nozzle 18, and by adjustment of the nee-
dle-valve 19 and the air-inlets 20 a proper mix-
ture of vapor and air is produced in the mix-
ing-tube 22 and driven up through the burner,
where it is ignited. After this action has
been established the gas-supply is shut off,
the air-inlets 25 are closed, and the lamp con-
tinues burning vapor.

To increase the amount of heat supplied to
the vaporizing-tube, the reflector and de-
flector 8, which is preferably made of pol-
ished metal, is mounted over the U-shaped
vaporizing-tube. The hot gases are tempo-
rarily retarded and condensed about the vapo-
rizing-tube by this deflector, and the radi-

ant heat is reflected upon the tube. The hot gases are allowed to escape through the opening 10 to the chimney. For convenience this deflector is mounted on the vaporizing-tube, and as said tube overarches the burner it also affords a convenient means for supporting the mantle.

In cleaning the tube the reflector and mantle are disconnected therefrom, the unions 12 and 14 unscrewed, the U-shaped tube lifted from its supports, and a swab mounted on a flexible wire is forced down either leg of the tube and around the curved portion thereof until all the impurities therein are removed.

Various changes could be made in the details of construction of the apparatus illustrated without departing from the spirit and scope of my invention so long as the relative arrangement and operation of the parts are preserved. The U-shaped tube might be located inside of the incandescent mantle instead of outside of the same, but such construction I have described and claimed in my application, Serial No. 649,009, filed of even date herewith.

The broad feature of the combination of the vapor-burner and incandescent mantle therefor—a vaporizing-tube with proper connections to the burner and located within the heating zone of the burner-flame either above or extending alongside of the incandescent mantle—I do not claim herein, as the same is shown, described, and claimed in my pending application, Serial No. 663,495, filed December 27, 1897.

Having therefore described my invention, what I claim as new, and desire to protect by Letters Patent, is—

1. In a vapor-burning apparatus for at-

tachment to a gas-bracket, the combination of the vapor-burner, the vaporizing-tube and connections, the gas-tip having a passage-way admitting gas beneath said burner, and the surrounding tube having air-inlets admitting air to mix with said gas, substantially as described.

2. A vapor-burning attachment for gas-fixtures, consisting of the combination of a vaporizing-tube supported over said fixture, a mixing-tube extending from a point in front of the end of the vaporizing-tube to the burner, the burner mounted on the gas-
fixture, and a passage-way discharging gas into said burner, substantially as described.

3. The combination of the vapor-burner, the gas-bracket on which it is supported, and with which it is in communication, the vaporizing-tube, the short mixing-tube connected to the base of the burner, the nozzle and needle-valve in said tube and connections from the vaporizing-tube to the nozzle, substantially as described.

4. The combination of the vapor-burner, the gas-bracket on which it is supported and with which it is in communication, the vaporizing-tube, the short mixing-tube connected to the base of the burner, and having air-inlets, the nozzle and needle-valve in said tube, and connections from the vaporizing-tube to the nozzle, together with adjustable means for controlling the air-inlets to said mixing-tube, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ARTHUR KITSON.

Witnesses:

A. PARKER SMITH,
ARTHUR C. BLATZ.