

No. 626,282.

Patented June 6, 1899.

A. KITSON.
VAPOR BURNING APPARATUS.

(Application filed May 24, 1898.)

(No Model.)

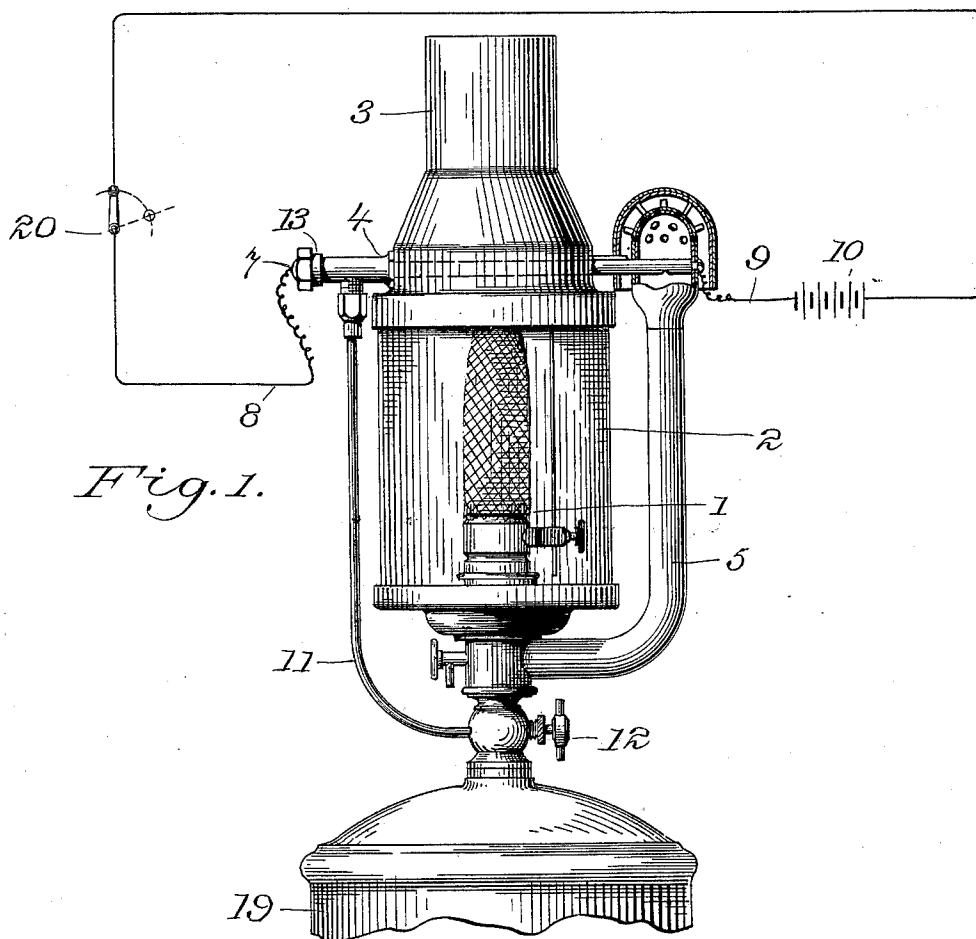
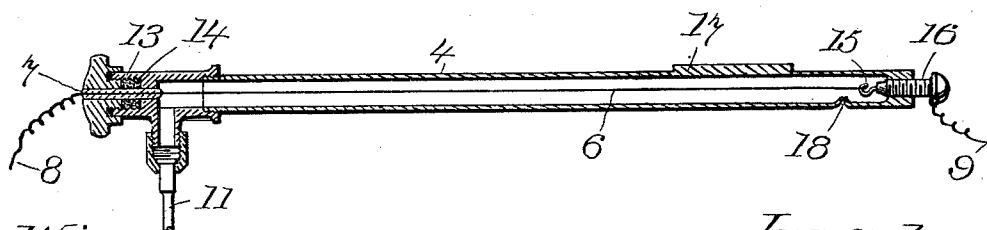


Fig. 1.

Fig. 2.



Witnesses,

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Inventor,

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UNITED STATES PATENT OFFICE.

ARTHUR KITSON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE
KITSON HYDROCARBON HEATING AND INCANDESCENT LIGHTING COM-
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VAPOR-BURNING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 626,282, dated June 6, 1899.

Application filed May 24, 1898. Serial No. 681,594. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR KITSON, a sub-
ject of the Queen of Great Britain, and a resi-
dent of Philadelphia, county of Philadelphia,
State of Pennsylvania, have invented certain
new and useful Improvements in Vapor-Burn-
ing Apparatus, of which the following is a
specification.

My invention relates to vapor-burning ap-
paratus, and is specially designed to produce
a simple and effective apparatus for produc-
ing the initial heating necessary to start said
apparatus into action. In all forms of such
apparatus that I have heretofore designed—
such, for instance, as that illustrated in my
United States Patent No. 600,792, dated March
15, 1898—the action is self-sustaining after
once put in operation by reason of the fact
that the heat given off by the burner is em-
ployed in part to heat the vaporizing-tube,
and thus transform fluid hydrocarbon into
vapor; but in order to produce the initial
heating of said tube some extraneous source
of heat is necessary. To accomplish this in
a safe and convenient manner, I propose to
employ an auxiliary electrical heater.

The apparatus herein illustrated and de-
scribed is a modification of that shown in my
pending application filed November 22, 1897,
Serial No. 659,425. The employment of the
entire vaporizing-tube as the heating-conduc-
tor, as shown in Fig. 2 of the drawings of
that application, requires a large amount of
current. To avoid that difficulty in the pres-
ent form of my invention, I include only a
portion of the vaporizing apparatus in the
electrical circuit. That portion can be made
of high resistance in the shape of a fine plat-
inum wire or carbon or other high-resistance
filament, so that a much less amount of cur-
rent is required to heat it to incandescence.
This high-resistance conductor is located in-
side the vaporizing-tube, where it comes in
direct contact with the oil.

The preferred form of my apparatus is illus-
trated in the accompanying sheet of drawings,
in which—

Figure 1 is a side elevation and partial sec-
tion of a lamp to which my electric heater has

been applied. Fig. 2 is a detail view show-
ing in longitudinal section the vaporizing ap-
paratus, with a portion thereof forming a part
of the electrical circuit through which the
heating current is sent.

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

1 represents the vapor-burner generally,
which is preferably arranged to heat an in-
candescent mantle of refractory material,
such as the well-known Welsbach mantle.

2 is a glass globe surrounding the burner
and supporting the lamp hood and chimney
3. In the hood is mounted a vaporizing-tube
4 within the heating zone of the burner and
preferably immediately over the same.

5 is a mixing-tube into which the vaporiz-
ing-tube discharges a jet of vapor through the
opening 18 and which conducts such vapor
and the necessary quantity of air entrained
by said jet down to the burner 1.

The foregoing is substantially in accord-
ance with the apparatus and mode of opera-
tion described in my before-mentioned pat-
ent, No. 600,792; but instead of securing the
initial heating of the vaporizing apparatus
by an alcohol flame I prefer to have a portion
of the said vaporizing apparatus, as the plat-
inum wire or other high-resistance filament
6, form a part of the electrical circuit com-
pleted by the wires 8 and 9, which lead from
opposite poles of a battery 10 or other source
of electric-current supply. This wire 6 is in-
sulated at one end from the vaporizing-tube
by means of the insulation 7. This prefer-
ably consists of a portion of glass or other
fusible material fused onto the end of the
wire 8 and to the end of the wire 6, or the
wire 8 may pass entirely through the insulat-
ing mass 7 and connect to the wire 6 inside
of the tube. This insulating mass 7 extends
through a stuffing-box 13, in which a liquid
and gas tight joint is made by the compres-
sion of the packing 14 about the mass 7. The
other end of the high resistance 6 is sup-
ported by any convenient means, such as the
hook 15 on the screw 16, to which latter the
leading-in wire 9 is attached.

17 is a feather on the upper side of the vap-

orizing-tube to hold it against any tendency to rotate, and 11 is the ordinary supply-tube for oil controlled by the valve 12.

19 is the bowl or other supporting-base for the lamp, and 20 is a switch for opening and closing the electrical circuit from the battery to the electric heating apparatus.

The method of operating my invention is as follows: When it is desired to start the lamp, the current is turned on at the switch 20 and the high-resistance conductor 6 becomes heated to a high degree. By reason of the insulation 7 the entire current is compelled to pass through this fine wire or filament 6. Oil is then admitted by opening the valve 12, and upon entering the heated interior of the tube 4 and coming in direct contact with the incandescent filament therein it becomes vaporized, and a jet of vapor discharges through the opening 18, entrains a suitable quantity of air with it, and forces the mixture down the mixing-tube 5 to the burner 1, where it is ignited by a match or otherwise. After a short time the heat of the burner becomes sufficient to maintain the vaporizing-tube 4 and its included wire 6 at the necessary temperature to continue the vaporizing of the oil, the current is shut off, and the action of the lamp becomes self-supporting.

The advantages of this form of apparatus are that the inconvenience resulting from the ordinary use of the alcohol-cup and any danger which might develop from the unskilful use of alcohol are avoided and the initial heating of the vaporizing-tube is effected with certainty, safety, and rapidity. It is also evident that the wire or filament 6 being connected at one end by metallic contact with the other portions of the vaporizing apparatus or tube 4 will be heated by the action of the vapor-burner during the regular action of the lamp,

and thus assist in the vaporization of the oil, even after the electrical current is shut off.

Of course this electrical heating attachment may be used with other forms of vapor-burner than the one shown, and numerous modifications of the arrangement of the electrical heater may be employed so long as a high-resistance portion of the vaporizing apparatus is a part of the electrical circuit. Where a filament arranged interiorly of the vaporizing-tube is employed, said filament need not be perfectly straight, as shown, but might be given other forms, if such were desirable.

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

1. In a vaporizing-lamp the combination of a vaporizing apparatus of metal, an electric circuit, a portion of the electric circuit forming a portion of the vaporizing apparatus of the lamp, said portion of the vaporizing apparatus so included in the circuit being sufficiently insulated from the rest of the lamp to compel the entire current to pass through the electrical conductor which forms said portion of the vaporizing apparatus, substantially as described.

2. The combination with a metal oil-vaporizing tube of an electrical heating-conductor extending lengthwise of the interior thereof and insulated at one end from said tube, said insulation consisting of a mass of insulating material fused about the conductor, and a stuffing-box on the end of the tube, through which stuffing-box the fused material extends, substantially as described.

Signed by me at New York, N. Y., this 20th day of May, 1898.

ARTHUR KITSON.

Witnesses:

LILIAN FOSTER,
W. H. PUMPHREY.