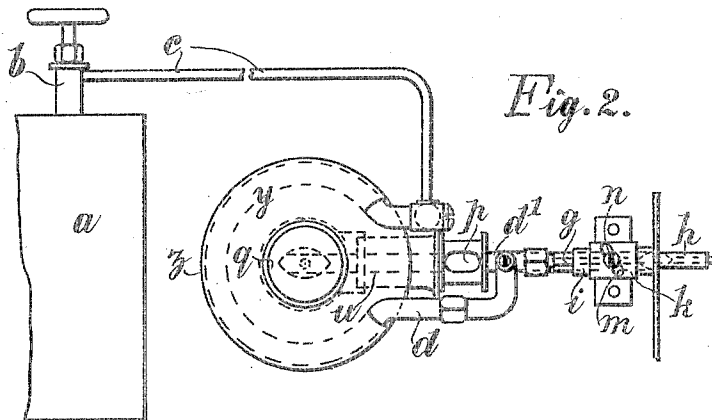
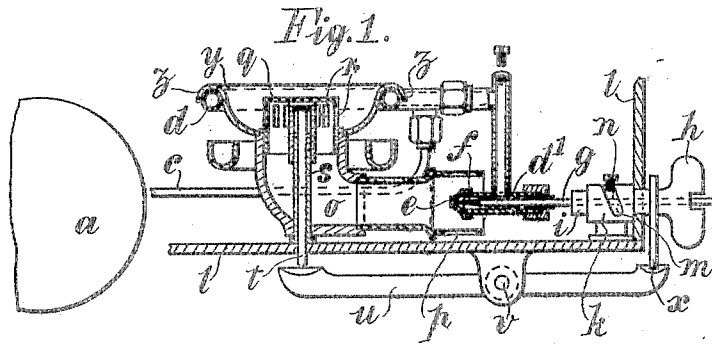


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LIQUID FUEL BURNER.
APPLICATION FILED OCT. 15, 1909.

1,009,678.

Patented Nov. 21, 1911.



WITNESSES:

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UNITED STATES PATENT OFFICE.

FRANÇOIS EUSTRATIUS MAVROGORDATO, OF LONDON, ENGLAND.

LIQUID-FUEL BURNER.

1,009,678.

Specification of Letters Patent. Patented Nov. 21, 1911.

Application filed October 15, 1909. Serial No. 522,786.

To all whom it may concern:

Be it known that I, FRANÇOIS EUSTRATIUS MAVROGORDATO, a citizen of the Swiss Republic, and resident of 31 Hallam street, Great Portland Street, London, England, have invented certain new and useful Improvements in Liquid-Fuel Burners, of which the following is a specification, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in hydrocarbon heating apparatus and refers particularly to the burner which is provided with means whereby the volume of vaporized spirit is controlled simultaneously and in proportion with the size of the outlets of the burner which are increased or decreased according to the greater or lesser volume of the vaporized fuel.

The invention also includes an improved shape of burner body, means for protecting the vaporizer and of distributing to it an equal heat throughout.

According to my invention the quantity of the vaporized spirit or other fuel and the size of the burner outlets are simultaneously controlled by means of a handle or key.

In the accompanying drawings, an example of my invention is shown, Figure 1 being a longitudinal section, and Fig. 2 a plan view of the apparatus.

As shown, the apparatus comprises a fuel reservoir *a* in which air may be compressed by any suitable means (not shown) such as, for example, a small hand operated pump. This reservoir *a* communicates, by means of a cock *b* and a pipe *c*, with a vaporizing tube *d*, bent in the form of a ring, whose end opposite its junction with the pipe *c* communicates with an injector *d'* whose orifice *e* may be more or less obturated by a needle valve *f* whose stem *g* is operated by a key *h* fixed to a sleeve *i* adapted to turn in a support *k* fixed to the frame *l* of the apparatus. This arm has a helicoidal orifice *m* in which is engaged the stem of a screw *n* which secures the stem *g* of the needle valve to the sleeve *i*. Thus, according as the key *h* is turned in one direction or the other, the needle valve *f* is advanced or withdrawn so as more or less to close the orifice *e* of the injector.

The injector leads into a bent tubular body *o* presenting near the orifice of the said injector openings *p* for admission of

air, while a cap *q*, forming a nozzle and having vertical openings *r*, is adjusted freely in the upper end of the body *o* in which it is guided by a tube *s* traversing the bottom of the said body *o* and fixed to the frame *l*. A rod *t* passes freely through the fixed tube *s* and supports at its upper end the cap *q* while its lower end rests on one end of a lever *u*, pivoted at *v*, whose other end is in contact, under the action of the weight of the cap *q* and of the rod *t*, with a cam *x* fixed to the sleeve *i* in such manner that the more the injector is opened by the needle valve the more the cap *q* is raised and the more it uncovers the openings *r* through which escape the hydrocarbon vapors which burn at the center of a metallic basin *y* under the flange *z* of which is located the vaporizing tube *d*.

The movements of the cap and the needle valve being inter-dependent it follows that the area of the openings *r* through which the hydrocarbon vapors escape is always proportionate to the output of the injector, which insures the regulation of the flame with great ease by simply turning the key *h* in one direction or the other. The tubular body *o* with its openings *p* and the injector, constitute therefore a bent Bunsen burner with a nozzle whose gas outlet orifices can be regulated simultaneously and proportionately to the output of the injector. The basin *y* serves for the recovery of heat, that is to say, when the burner works with full openings *r* and *e*, the metallic surface of this basin prevents the vaporizing tube *d* from reaching too high a temperature, while when the burner works with reduced flame, the metallic surface licked by this flame maintains the said vaporizing tube *d* at the necessary temperature.

What I claim and desire to secure by Letters Patent is:—

1. In a hydrocarbon heating apparatus, the combination of a tubular body having a gas outlet, means for varying the area of said outlet, an injector discharging into said tubular body, a support, a stem in said injector and rotatable relative to said support, a cam engagement between the stem and the support for advancing the stem in the injector as the stem is rotated, and an operative connection between the stem and the means for varying said area, for causing said area to vary as said stem is advanced.

2. In a hydrocarbon heating apparatus,

the combination of a tubular body having
a gas outlet, an injector discharging into
said body, a tubular support having a helical
orifice, a stem in said injector and support,
5 and having a projection engaging in said
orifice, a means for varying the area of said
gas outlet, and an operative connection be-
tween said means and said stem.

3. In a hydrocarbon heating apparatus,
10 the combination of a tubular body having a
gas outlet, an injector discharging into said
body, a tubular support having a helical
orifice, a stem in said injector and support,

and having a projection engaging in said
orifice, a cam on said stem, a vertically 15
movable rod in said tubular-body, a cap in
the upper part of the tubular body and hav-
ing lateral openings and engaged by said
rod, and a centrally fulcrumed lever engag-
ing said cam and rod. 20

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

FRANÇOIS EUSTRATIUS MAVROGORDATO.

Witnesses:

F. L. RAND,

R. T. WILLIAMS.