

No. 633,117.

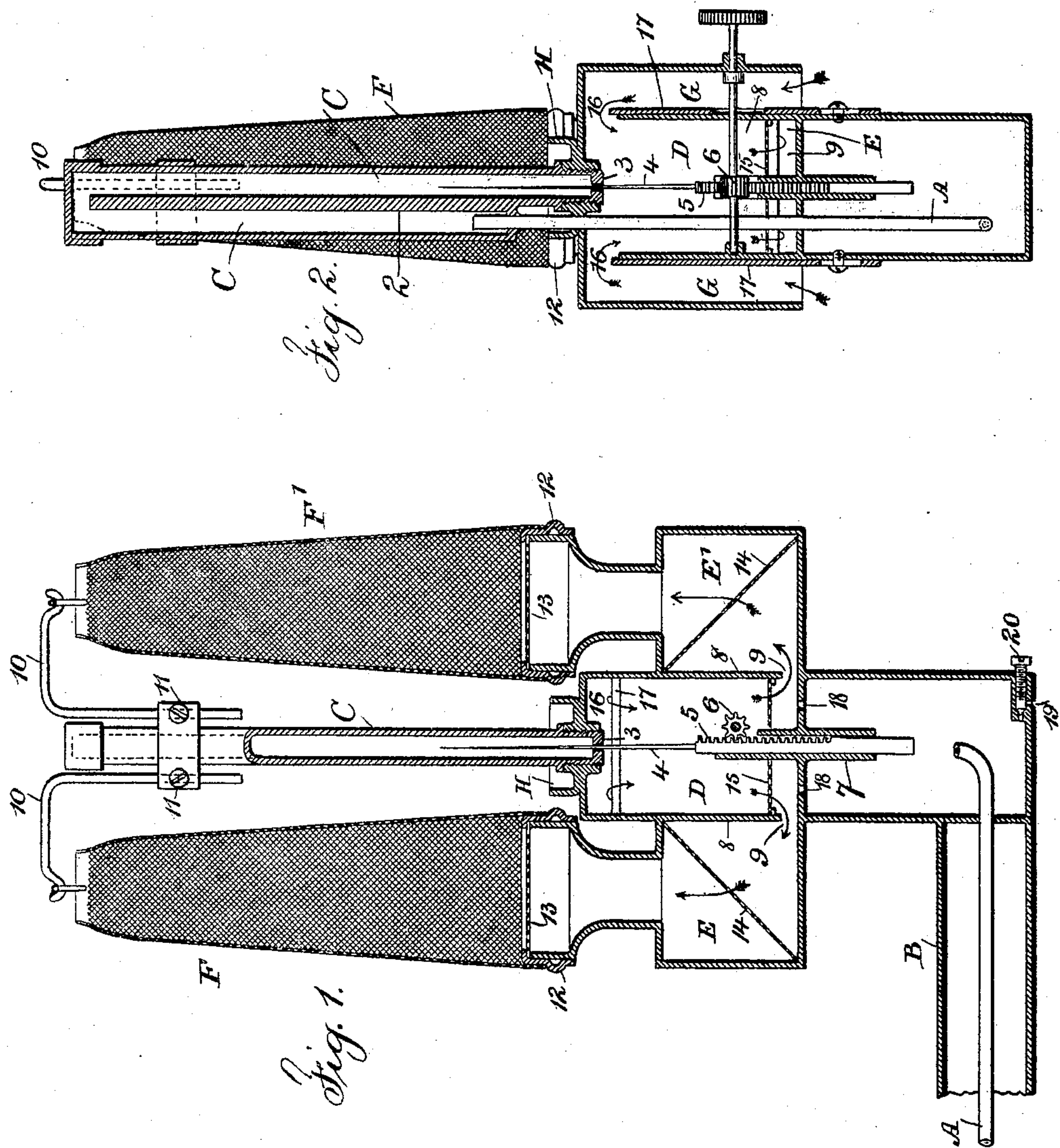
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C. C. BRUCKNER.

PETROLEUM INCANDESCENT BURNER.

(Application filed Sept. 20, 1897.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES C. BRUCKNER, OF NEW YORK, N. Y.

PETROLEUM INCANDESCENT BURNER.

SPECIFICATION forming part of Letters Patent No. 633,117, dated September 19, 1899.

Application filed September 20, 1897. Serial No 652,256. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. BRUCKNER, a citizen of the United States, residing at New York, (Brooklyn,) in the county of Kings and State of New York, have invented a new and useful Improvement in Petroleum Incandescent Burners, of which the following is a specification.

The object of the present invention is to regulate with accuracy the discharge of petroleum vapors into a chamber wherein such vapors are commingled with atmospheric air and pass to a burner in which the blue flame, similar to a Bunsen flame, is employed to heat an incandescing mantle that is suspended in the flame.

The tapering needle-valve made use of by me is actuated from outside of the generating-chamber, so that a packing is not required for the rod of the valve, and the valve can tightly close the chamber when the lamp is extinguished, so as to effectually prevent any leakage, and the burner is constructed with reference to the accurate proportioning of the air to the vapors and the thorough admixture of one with the other, so that the flame will only contain the proportion of hydrocarbon vapor necessary for obtaining the required heat.

In the drawings, Figure 1 is a vertical section through the generating-chamber and the two burners, and Fig. 2 is a vertical section at right angles to Fig. 1.

The liquid hydrocarbon is supplied by the pipe A from any suitable vessel, and this may be at a sufficient elevation for the liquid to run to the burner; but generally it is preferable to force atmospheric air into the supply vessel sufficiently to obtain the pressure required to carry the liquid to the place of combustion. This supply-pipe may be very small and passed through any suitable support or bracket B to the lamp.

The generating-chamber C is vertical and made in two parts separated by a partition 2, which passes from the bottom to near the top of the chamber, and the pipe A enters at the lower end at one side of the partition, and there is a valve-seat 3 at the lower end of the generating-chamber at the other side of the partition, such valve-seat being adapted to the long tapering needle-valve 4, which is

passed up from below and receives motion from any suitable device, such as a rack 5 and pinion 6, actuated by a thumb-wheel upon a shaft extending outside of the chamber D, and the guide 7 is adapted to support said rack as it is moved up and down. By this device the needle-valve can be raised to close the outlet from the generating-chamber perfectly tight, so that there will be no leakage, or the needle-valve can be withdrawn to regulate the passage of vapor from the generating-chamber into the mixing-chamber D.

The hollow base of the lamp, within which is the mixing-chamber D, is extended laterally to form the hollow bases for one or two burners. I have represented two hollow burner-bases at E and E', and the partitions 8, that separate the mixing-chamber D from the burner-bases, extend to near the bottom of the burner-base, there being an opening or openings 9 for the mixed fluids to pass from the chamber D into the hollow burner-bases.

The incandescing mantles F F' are to be of any desired character, usually a preparation of magnesia, and these are suspended above the burner-bases E E' in any desired manner. I prefer to use the bracket-arms 10, extending out from the sides of the generating-chamber C and received in the clamps 11, so as to be raised or lowered according to the length of the incandescing mantles, and the movable rings 12 around the upper ends of the burner-bases serve to retain the distributing-plates 13, of perforated sheet metal, through which the fluids pass to the flames, and it is advantageous to apply screens at 14 15 in the hollow burner-bases and mixing-chamber to aid in effecting a perfect admixture of the hydrocarbon vapors and the atmospheric air admitted into the mixing-chamber.

At the sides of the mixing-chamber are the air-inlet flues G, that are open at the bottom and communicate at the top through the openings 16 with the upper part of the mixing-chamber D, and the slides 17 within the air-inlet flues can be raised or lowered and secured by screws passing through slots, so that the openings at 16 can be regulated for determining the proper volume of air to be admitted for mixing with the hydrocarbon vapors in the chamber D and from which chamber D such vapors pass down through

the openings 9 and rise up within the hollow burner-bases and burn as blue or Bunsen flames in rendering the mantles luminous. A small cup H upon the upper part of the

5 mixing-chamber D and below the generating-chamber C is adapted to receive alcohol or similar fluid for heating the generating-chamber previous to lighting the lamp.

The bracket or support B is preferably hollow, as shown, and connected with the base of the lamp, and holes at 18 allow any liquid to drop from the bottom of the mixing-chamber into the hollow bracket, and an opening at 19, with a screw-valve 20, allows for the

15 withdrawal of any liquid that may accumulate in the bracket or support. This accumulation may sometimes arise from carelessness in handling the lamp, the intention being that the needle-valve 4 shall tightly close

20 the generating-chamber when the lamp is not in use and that such valve should only be opened the proper distance for allowing the escape of the necessary hydrocarbon vapors, the generating-chamber being maintained at

25 a sufficiently high temperature by the adjacent burners for vaporizing the liquid passing by the supply-pipe A to such generating-chamber, so that the chamber will be full of hot vapors, and when the needle-valve is

30 closed such vapors will be retained and effectually prevent the risk of leakage of liquid when the lamp is not in use.

In consequence of the generating-chamber being closely adjacent to the flame it becomes

35 sufficiently highly heated for the vaporization of the liquid; but the valve-seat and valve at the lower end of the generating-chamber are not exposed to a high temperature and are not liable to become injured,

40 and the metal is not exposed to such a high temperature as to vary the position of the valve in relation to the seat by expansion or contraction, and the mixing-chamber being immediately below the generating-chamber

45 and the air-inlet flues extending upward and opening at the top into the mixing-chamber prevents the risk of the escape of vapors, because the jet or vapor issues downward from the valve-seat and carries with it the air, and

50 the mixture is intimate, because the air and vapors escape from the lower end of the mixing-chamber into the hollow burner-base.

I claim as my invention—

1. The combination in an incandescent

55 lamp with a support for the mantle and a hollow base for the burner, of a mixing-chamber below the burner and immediately adjacent to the hollow base, an air-inlet flue, opening at its upper end into the mixing-chamber, a

60 generating-chamber above the mixing-chamber and adjacent to the mantle, a supply-pipe permanently connected with the generating-chamber, a valve-seat at the lower end of said generating-chamber and a tapering

65 needle-valve passing up through the mixing-chamber to the valve-seat and mechanism for moving the valve from below so as to close

the generating-chamber tightly or to allow the downward escape of the hydrocarbon vapors in the proper proportion into the mixing-chamber, substantially as set forth. 70

2. The combination in an incandescent lamp with a mantle and its support and a hollow base for the burner, of a mixing-chamber adjacent to the hollow base, a generating-chamber above the mixing-chamber having a vertical partition and a supply-pipe to one end of the generating-chamber, a valve-seat at the lower end of the generating-chamber opening into the top of the mixing-chamber, a tapering needle-valve passing through the mixing-chamber into the valve-seat and means for moving such needle-valve and regulating the escape of hydrocarbon vapors into the mixing-chamber, substantially as set forth. 85

3. The combination in an incandescent lamp with the mantle and its support and the hollow base, of a mixing-chamber, a generating-chamber above the mixing-chamber and having a vertical partition, a supply-pipe to one end of the generating-chamber, a valve-seat opening into the mixing-chamber and a tapering needle therefor passing through such mixing-chamber into the valve-seat, and means for moving such needle-valve and regulating the escape of hydrocarbon vapors into the mixing-chamber, an air-inlet flue passing up at one side of the mixing-chamber and opening into the upper part of the same, substantially as specified. 100

4. The combination in an incandescent lamp with the mantle and its support, and the hollow base, of a mixing-chamber, a generating-chamber above the mixing-chamber and having a vertical partition, a supply-pipe to one end of the generating-chamber, a valve-seat opening into the mixing-chamber and a tapering needle-valve passing through such mixing-chamber into the valve-seat, and means for moving such needle-valve and regulating the escape of hydrocarbon vapors into the mixing-chamber, an air-inlet flue passing up at one side of the mixing-chamber and opening into the upper part of the same, a slide for regulating the admission of air into the mixing-chamber, substantially as set forth. 105

5. The combination in an incandescent burner with the two mantles, the burners and their hollow bases, of a mixing-chamber between the hollow bases, a generating-chamber between the mantles, a valve-seat at the lower end of the generating-chamber opening directly into the mixing-chamber, a valve for regulating the escape of the hydrocarbon vapors, air-flues at the sides of the mixing-chamber opening at their upper ends into such mixing-chamber, there being openings in the lower portion of the mixing-chamber into the hollow bases of the burner, substantially as set forth. 120

6. The combination in an incandescent lamp with the mantle and its support and the hollow base of a mixing-chamber, a generat-

ing-chamber above the mixing-chamber and
having a vertical partition, a supply-pipe to
one end of the generating-chamber, a valve-
seat opening into the mixing-chamber and a
5 tapering needle-valve passing through such
mixing-chamber into the valve-seat, and
means for moving such needle-valve and reg-
ulating the escape of hydrocarbon vapors into
the mixing-chamber, a hollow support for the
10 mixing-chamber and openings for any liquid

passing into the mixing-chamber and a valve
at the bottom of the hollow support for allow-
ing such liquid to be drawn off, substantially
as set forth.

Signed by me this 18th day of September, 15
1897.

CHARLES C. BRUCKNER.

Witnesses:

GEO. T. PINCKNEY,
S. T. HAVILAND.