No. 622,929. Patented Apr. 11, 1899.

W. B. RULON & J. S. KEEN, JR.

INCANDESCENT LAMP.

(Application filed Oct. 11, 1898.)

(No Model.)

Fig. 1.

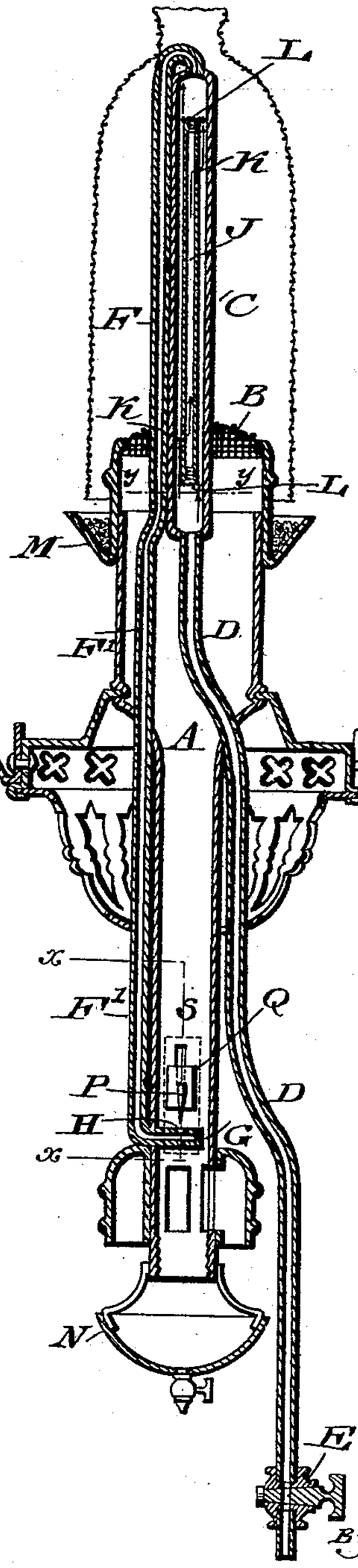


Fig. 3.

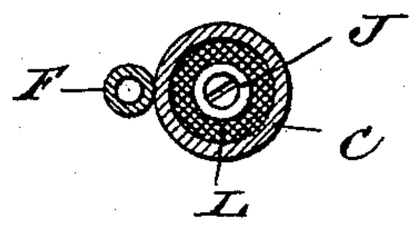
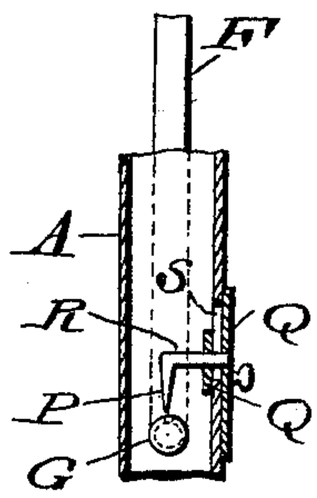


Fig. 2.



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UNITED STATES PATENT OFFICE.

WATSON B. RULON, OF BORDENTOWN, NEW JERSEY, AND JOSEPH S. KEEN, JR., OF PHILADELPHIA, PENNSYLVANIA.

INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 622,929, dated April 11, 1899.

Application filed October 11, 1898. Serial No. 693,238. (No model.)

To all whom it may concern:

Be it known that we, WATSON B. RULON, residing at Bordentown, in the county of Burlington, State of New Jersey, and JOSEPH S. KEEN, Jr., residing in the city and county of Philadelphia, State of Pennsylvania, citizens of the United States, have invented a new and useful Improvement in Incandescent Lamps, which improvement is fully set forth in the following specification and accompanying drawings.

Our invention consists of an incandescent lamp for burning hydrocarbon oil or fluid embodying a vaporizing-chamber of novel construction containing an inner apertured tube, a perforated diaphragm at the ends thereof, whereby the hydrocarbon is divided into a plurality of streams, and thereby effectively disintegrated and heated, a superheater, gas or vapor generator, an oil or fluid supply pipe leading to said chamber, and a gas or vapor conveying pipe leading from said superheater to the gas or vapor flue of the burner, said parts being continuous, causing effective vaporization, and means for preventing or relieving the clogging of the discharge-opening of the vapor-conveying pipe in said flue, producing a superior lamp of compact, simple, and inexpensive construction, as will be hereinafter described, and its novel features pointed out in the claims that follow the specification.

Figure 1 represents a vertical section of a lamp embodying our invention, showing also what is known as a "mantle" employed in lamps of the class. Fig. 2 represents a vertical section of a portion on line *x x*, Fig. 1. Fig. 3 represents a horizontal section of a portion on line *y y*, Fig. 1, on an enlarged scale.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates a gas or vapor flue, at the top of which is the burner B, of gauze or other suitable material.

C designates the vaporizing tube or chamber, which passes through said flue and burner and projects above the latter and has connected with its lower end the pipe D, which is adapted to communicate with a place of supply of oil or hydrocarbon fluid and is provided with a regulating-cock E for evident purposes. Connected with the upper end of said tube C is the superheater or superheating-pipe F, which extends downwardly therefrom, aside of the same, and is continued, as at F′, the lower end of the extension being provided with a lateral branch G, which enters the flue A and is in communication with the same by means of the pin-hole H in said branch, the adjacent end of the branch being closed. The pipe F passes through the burner B and has a portion inside of the flue A and another portion outside of the same, the pipe D being also partly inside and outside of said flue.

Within the vaporizing-tube C is the pipe J, of somewhat smaller diameter and having ports K in the side thereof. The ends of the pipe J are retained in the tube C by means of the pieces L, of gauze or other perforated material, which are secured thereto by screws or plugs L′ and likewise attached to the tube C, said pieces permitting the passage of oil and vapor therethrough, as will be hereinafter more fully explained.

Encircling the upper end of the flue is the gutter M, which is adapted to contain oil or fluid for primary vaporizing purposes.

Connected with the lower end of the flue is the cup or vessel N, which is adapted to receive the carbonization that may be formed within said flue and drop therefrom.

Within the flue, at the lower end of the same, is the pin P, which is located above the pin-hole H and adapted to have its point enter therein, said pin being connected with the sliding plates Q, which are freely fitted to opposite sides of the wall of the flue and carry the shank R of said pin, said shank freely occupying the slot S in said wall, so that said pin may be raised and lowered while the slot remains closed, provision thus being made for pricking the pin-hole should the same be clogged or otherwise obstructed.

It will be seen that as oil or fluid is supplied through the pipe D to the vaporizer C and passes through the lower gauze L some of the fluid enters the interior pipe J through the lower port K and traverses said pipe until it reaches the upper port, when it again returns into the vaporizer, the oil or fluid thus being divided and passing upwardly in dif-

ferent streams and being subjected to the heat of the vaporizer proper and that of the pipe J within the same. It then passes through the upper gauze L to the top of the vaporizer, thus converting the oil or fluid into gas or vapor, which is directed into the superheater F, whereby the gas or vapor is superheated, in which condition it is directed into the flue A and passed to the burner, where it is ignited, the flame being directed against the vaporizer and superheater, while also heating the gas-flue and the pipes in the latter.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a lamp, the combination of a flue, a burner, a vaporizing-chamber extending above the same, an apertured pipe contained within said chamber and having perforated diaphragms at its ends, a superheater located in proximity to said chamber and communicating therewith and an outlet branch extending from said superheater to said flue.

2. A vapor-flue, a vaporizer, a superheater, extending from said vaporizer and a branch continuing from the superheater to said flue and provided with an outlet-opening at said flue, in combination with a pin in said flue adapted to enter said opening, and a carrier for said pin, said carrier being mounted on the wall of the lamp and adapted to move said pin to and from said opening.

3. In a lamp, a flue, a burner at the top thereof, a vaporizing-chamber, and a superheater, the latter extending downwardly from the upper end of said chamber, and both chamber and superheater passing through said burner, in combination with a supplemental heating-pipe which is located within said vaporizing-chamber and is in communication therewith at its opposite ends and a perforated diaphragm located within said chamber at or near the end of said supplemental pipe.

4. A vapor-flue and a vapor-conveying pipe entering said flue and provided with an outlet therein, a pin in said flue adapted to enter said outlet and a plate which is mounted on a wall of the lamp and carries said pin the latter being adapted to move said pin to and from said outlet.

5. In a lamp, a flue, a burner at the top thereof, a vaporizing-chamber, and a superheater, the latter extending downwardly from the upper end of said chamber, and both chamber and superheater passing through said burner, in combination with a supplemental heating-pipe which is located within said vaporizing-chamber and is in communication therewith at its opposite ends, and a perforated diaphragm within said chamber at or near the end of said supplemental pipe for dividing the hydrocarbon fluid into streams in said chamber.

6. In a lamp, the combination of a flue, a vaporizing-chamber, a pipe having closed ends located within the latter and communicating with said chamber, perforated diaphragms located near the ends of said pipe, a superheater communicating with said chamber, a pipe leading from said superheater to a branch entering said flue, an outlet-port in said branch and means for pricking said port.

7. In a lamp of the character named, a vaporizing-chamber, in combination with a pipe therein having closed ends and provided with ports and perforated diaphragms common to the ends of said pipe and the interior of said chamber, whereby the hydrocarbon fluid is divided up into a plurality of streams in its passage through said chamber.

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