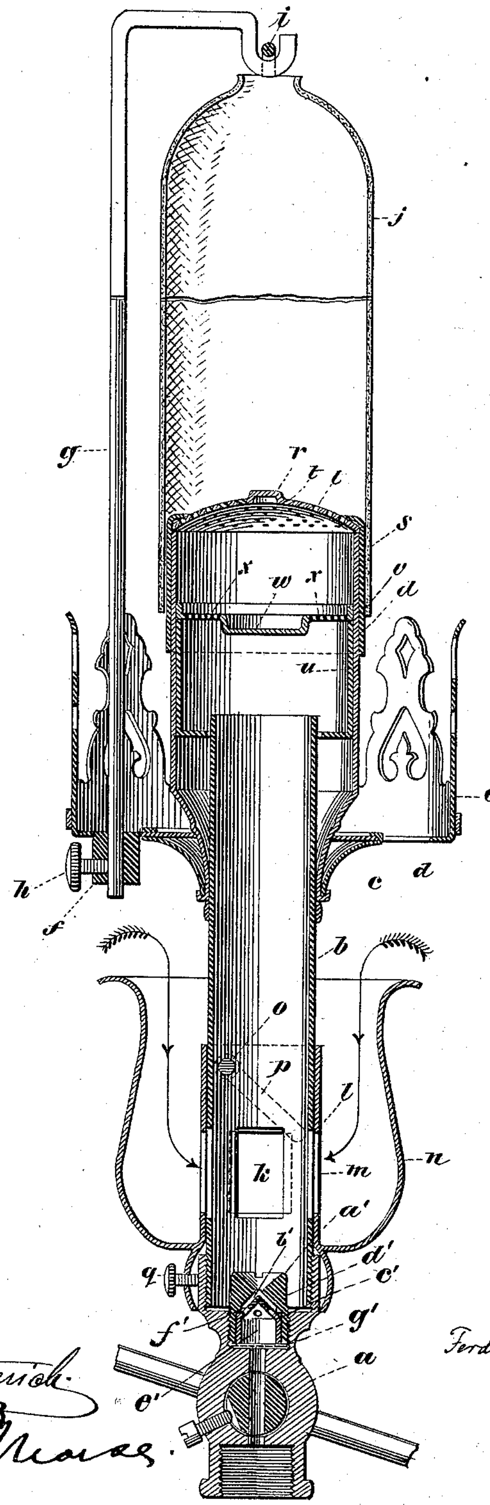
(No Model.)

F. C. von HEYDEBRAND u. d. LASA & J. LOCH.

INCANDESCENT GAS LAMP.

No. 605,250. Patented June 7, 1898.



WITNESSES:

Gustave Dieterich

Fred. C. Maase.

INVENTORS

Ferdinand C. v. Heydebrand u. d. Lasa,

Joseph Loch,

BY Briesen & Knauth

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FERDINAND CHRISTOPH VON HEYDEBRAND UND DER LASA, OF NEW YORK, AND JOSEPH LOCH, OF BROOKLYN, NEW YORK, ASSIGNORS TO THE HEYDEBRAND INCANDESCENT LIGHT COMPANY, OF NEW YORK, N. Y.

INCANDESCENT GAS-LAMP.

SPECIFICATION forming part of Letters Patent No. 605,250, dated June 7, 1898.

Application filed May 24, 1897. Serial No. 637,920. (No model.)

To all whom it may concern:

Be it known that we, FERDINAND CHRISTOPH VON HEYDEBRAND UND DER LASA, of the city and county of New York, and JOSEPH LOCH, of Brooklyn, Kings county, State of New York, have invented certain new and useful Improvements in Incandescent Gas-Lamps, of which the following is a specification.

Our invention relates to gas-lamps, more especially to incandescent gas-lamps, but is not limited thereto, as the invention may be embodied in any species of gas-lamp.

Our invention has for its object to improve gas-lamps, more especially incandescent gas-lamps, in the following particulars: first, to provide against flickering in the light by restricting the flow of air to the mixing-chamber in such manner that air can only approach and enter the said mixing-chamber by a tortuous course, thus avoiding all direct blowing of air into the mixing-chamber, which has been found detrimental in lamps heretofore constructed; second, to improve the lamp by properly regulating the flow of gas thereto, so that variations of pressure in the service-pipes will be compensated for by the regulator, so that the amount of gas supplied to the flame will always be constant, which in incandescent gas-lamps will bring about the effect of a constant light; third, to improve the distribution of gas to the flame by providing means for scattering or dividing the gas and delivering it to the mantle, and, fourth, to prevent "flashing back."

A lamp embodying our invention is illustrated in the accompanying drawing, in which *a* is any usual gas connection, shown in the present instance as a by-pass cock. This connection *a* is surmounted by a mixing-chamber *b*, shown in the present instance as of tubular form and extending upward and surmounted by a sleeve *c*, bearing a burner cup or cap *d*. The sleeve *c* is shown as provided with a sleeve $d^{\times}$, which carries the burner-gallery *e*, which is provided with a stud *f*, pierced for the reception of a mantle-hanger *g*, whose lower end passes therethrough and is adjustably held therein by a set-screw *h*. The mantle-hanger is shown in the present instance as a wire whose upper end is formed in the shape of a hook *i*, from which the mantle *j* is suspended. This mantle *j* hangs down into proximity with the burner cup or cap, as is usual in lamps of this character.

The mixing-chamber *b* is shown as perforated at its sides by perforations *k*, shown as rectangular, but may be of any desired form. Surrounding the mixing-chamber is a sleeve *l*, apertured with apertures *m*, through which air may pass, so as to reach the mixing-chamber through the apertures *k*. This sleeve is freely movable on the mixing-chamber and is provided with a shield *n*, closed at the bottom and open at the top, so that air can obtain access to the apertures *m* only by passing over the top of the shield and downward into the said shield and laterally into the openings *m*, as clearly indicated by the arrows in the drawing. The sleeve *l* and its shield *n* move vertically up and down on the mixing-chamber by reason of the fact that there is a pin-and-slot connection *o p* intervening between the sleeve *l* and the mixing-chamber *b*, whereby when the sleeve *l* is rotated the cam action between the pin-and-slot connection *o p* will cause the said sleeve *l* to move up or down, as the case may be, thereby not only closing the apertures *k* by a lateral movement of the sleeve *l*, but also closing them by an upward movement, so that for a given amount of closure the sleeve need be rotated but a slight distance as compared with the distance which it would be necessary to rotate it in case there were no up and down movements. The sleeve *l* may likewise be provided with a means for holding it in a set or fixed position. This means is shown in the present instance as a set-screw *q*, which set-screw passes through the sleeve *l* and bears against the mixing-chamber, all of which will clearly appear from the drawing.

The burner-cap *d* is surmounted by a foraminous spreader *r*, which is shown in the present instance as a dished cap held in place by a removable annular sleeve *s*, frictionally held to the burner-cup. This sleeve may be suitably connected to the burner-cup, as, for instance, by a bayonet-joint. This foraminous spreader r is shown as perforated in a peculiar manner in order to properly spread and distribute the gas to the mantle.

By referring to the drawing it will be noted that the holes t are inclined to the axis of the burner-cup, which inclination becomes less and less as we proceed from the center of the cap r to the edge thereof, so that the gas will be distributed upward and outward against the mantle in a sheet toward a single line or plane. Located within the burner-cup d below the foraminous spreader r we have shown a cup u, whose upper edge forms a ledge v, upon which a foraminous pan w rests. This foraminous pan is made solid and dished slightly downward at its center, between which dished portion and the edge of the pan are a series of gas-outlets x. This foraminous pan serves to permit the gas to pass upward to the burner in a regulated quantity and prevents flashing back of the gas, as only a definite amount of gas can pass through the pan in either direction, and consequently the pan acts to bar any sudden passage of any considerable volume of gas.

Coming now to the regulator, it will be observed that we have provided a chamber a', which leads into the mixing-chamber. This regulating-chamber a' is pierced with frusto-conical apertures, whose apices communicate with each other. The lower frusto-conical aperture or valve-chamber b' receives a check or regulator valve c'. This check or regulator valve c' is shown as hollow and provided with apertures d' and a skirt or apron e', the said conical part and the apron constituting the conical check or regulator valve. This check or regulator valve has a free movement up and down in the chamber, but is prevented from being brought face to face against the conical wall of the chamber by reason of a shoulder f, shown somewhat exaggerated, formed at the base of the conical chamber or aperture b', so that when under strong gas-pressure the check or regulator valve is firmly seated it will come against the said shoulder and leave a slight space between the two conical faces, so as to allow for the passage of the gas. It will be understood that the valve is very light and will be kept up by the gas-pressure and will regulate the supply of gas to the mixing-chamber corresponding to the pressure employed—that is to say, with slight pressures the check or regulator will drop down and leave a considerable space between the conical walls of the valve and chamber b', so that gas can pass in considerable volume, but upon increase of gas-pressure the valve will rise and diminish the space between the conical walls, so as to allow the gas to flow in less volume, and consequently the opening or passage for the flow of gas will be enlarged or restricted proportionately to the pressure of the gas. In order to prevent choking up of the parts, we provide a netting g' below the regulator or between the regulator and the gas-supply.

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

1. In a gas-lamp, the combination of an apertured mixing-chamber, an apertured sleeve independent of the burner and freely movable thereon, a pin-and-slot connection between the sleeve and mixing-chamber, whereby the said sleeve may be moved longitudinally on the mixing-chamber when it is rotated thereon, and means for fixing the sleeve in a predetermined position.

2. In a gas-flow regulator, the combination of a valve-chamber having a frusto-conical valve-seat, the opening in which is at the apex thereof, a conical check-valve apertured at its sides and of a diameter sufficient to reach contact with the side walls of said valve-chamber and entered into the valve-seat of the chamber, and a stop for preventing the check-valve from contacting with the said valve-seat and closing the opening therein.

3. As a means for securing the efficient burning of the gas in a gas-burner, the combination of a mantle, and a foraminous spreader provided with apertures t, which apertures t are at different inclinations to the surface of the spreader, the apertures near the middle of the spreader being generally more inclined to the axis of the spreader than those at the edge thereof so as to spread the gas out into a sheet, whereby the gas will burn in a comparatively flat flame in the direction of the mantle.

4. In a burner of the character described, the combination with a cup provided with burner-orifices, of a flash-back pan having a central imperforate downwardly-extending dished portion surrounded by perforated rim, said pan being located within the said cup, whereby the said downwardly-extending dished portion of the pan will distribute the gas outward to the perforated rim, substantially as described.

FERDINAND CHRISTOPH VON HEYDEBRAND U. D. LASA.
JOSEPH LOCH.

Witnesses:
GEO. E. MORSE,
MAURICE BLOCK.