

(No Model.)

J. G. JACKSON & A. L. DANIELS.
INCANDESCENT GAS LAMP.

No. 492,295.

Patented Feb. 21, 1893.

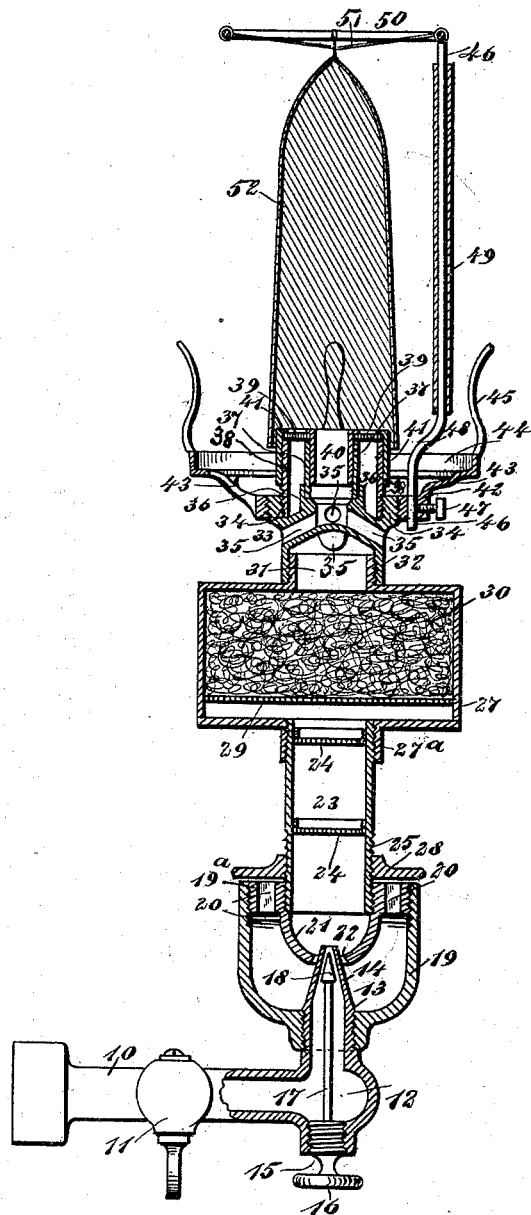


Fig 1

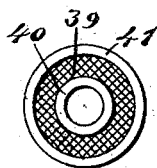


Fig 2

WITNESSES:
H. Walker
C. Sedgwick

INVENTORS:
J. G. Jackson
A. L. Daniels
by *Munn & Co*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOEL G. JACKSON, OF MINNEAPOLIS, MINNESOTA, AND ADDISON L. DANIELS,
OF MARION, IOWA.

INCANDESCENT GAS-LAMP.

SPECIFICATION forming part of Letters Patent No. 492,295, dated February 21, 1893.

Application filed February 24, 1892. Serial No. 422,612. (No model.)

To all whom it may concern.

Be it known that we, JOEL G. JACKSON, of Minneapolis, in the county of Hennepin and State of Minnesota, and ADDISON L. DANIELS, of Marion, in the county of Linn and State of Iowa, have invented a new and improved Incandescent Gas-Lamp, of which the following is a full, clear, and exact description.

Our invention relates to improvements in incandescent gas lamps, and the object of our invention is to produce a simple lamp of this character, which is adapted to burn any of the gases made from odorous petroleum oil and produce a brilliant light without generating any odor. To attain this object, we have provided means for regulating the flow of gas so that it may be supplied centrally and with a uniform current to the lamp. We have also provided means for admitting just the exact quantity of air required to the air mixer, have arranged a reservoir which will check the flow of gas, and cause it and the air to be thoroughly mingled, have arranged the burner so that a current of air will be admitted to the middle of the flame so as to promote combustion and produce an intense white light, have arranged the refractory mantle and its holder, so that the mantle will not be unduly heated, we finding that if the mantle holder is placed in too close proximity to the mantle, the reflected heat from it causes the mantle to become over heated at that point, and break vertically in a line with mantle holder, and so that the mantle will be quickly heated to the proper incandescence, and have arranged novel minor parts of the lamp, all with the end of obtaining complete combustion, and rendering the light extremely luminous without odor.

To this end our invention consists in certain features of construction, and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures of reference indicate corresponding parts in both the views.

Figure 1 is a vertical section of the lamp embodying our invention; and Fig. 2 is a plan view of the burner which is of the Argand variety.

The pipe 10 is adapted to screw upon the gas supply pipe in the usual way and is provided with the ordinary valve 11, and the pipe also has at one end a chamber 12, having on the upper side an exteriorly threaded discharge tube 13, which terminates in a conical nozzle 14 having a central discharge.

On the underside of the chamber is a screw plug 15, having a milled wheel 16 at its lower end by which it may be turned, and having centrally on the upper side, a stem 17 which projects through the tube 13 and terminates at its upper end in a conical valve 18 adapted to enter and close the opening in a discharge nozzle 14. This arrangement of the valve and nozzle enables the valve to be adjusted so that ever so small a quantity of gas may be allowed to pass or the gas may be shut off entirely and it also enables the gas to flow upward in an even stream. A bowl-like vessel 19 is mounted above the chamber 12, the vessel having a reduced lower end which is interiorly screw-threaded and screwed upon the tube 13. A collar 19^a is screwed into the upper end of the vessel 19 so that the upper edges of the collar and vessel will be flush, and arranged vertically in the collar are air ports 20, leading into the vessel 19 which vessel forms an air chamber. The collar 19^a has centrally therein, a depending wall 21, which forms the lower half of the mixing chamber, and this mixing chamber has in the middle, an opening 22 which is adapted to receive the upper end of the discharge nozzle 14. The air from the air chamber flows upward into the mixing chamber around the nozzle, and the air and gas are thoroughly mingled. The collar 19^a is open centrally above the mixer and this opening is internally screw-threaded so that a tube 23 may be screwed into it, and this tube forms practically a prolongation of the mixer.

Within the tube are screens 24 which cause the gas and air to be thoroughly mingled as they pass through them, and the tube 23 is exteriorly screw-threaded at 25 near its lower end, which enables it to be screwed into the collar 19^a and also enables the air adjusting cap 28 to be moved up and down, as described presently. A reservoir 27 is supported at the upper end of the tube 23, the reservoir hav-

ing on the under side a nipple 27^a which is screwed upon the tube 23. A collar or cap 28 is screwed upon the lower portion of the tube 23 and this cap has a flat under surface which is adapted to fit snugly upon the upper end of the air chamber 19 and on the collar 19^a, and thus close the ports 20. The thread on the tube 23 and in the cap 28 is made rather fine and this arrangement enables the cap to be adjusted so that the most minute quantity of air may be admitted to the air chamber or the air chamber may be tightly closed so that no air will be admitted.

Extending transversely across the reservoir 27 near the bottom is a screen 29 above which is curled hair, asbestos, fiber or similar durable and light material 30, and this fibrous material by offering resistance to the gas and air causes them to be thoroughly mixed, and this mixing is further facilitated by reason of the fact that the reservoir holds considerable gas and air, and the two are retained therein for some little time. A further advantage in the mixing chamber 27 is obtained in this way. There being a comparatively large amount of gas and air mixture retained in the chamber, and this chamber becoming very hot from the reflected heat of the lamp, the mixture becomes thoroughly heated, and in the best possible condition for rapid and perfect combustion, by the time it reaches the burner.

The reservoir has a discharge nipple 31 on the upper side; to which is screwed the lower portion 32 of the burner 33. This burner 33 is an Argand burner, and the lower portion 32 terminates at its upper end in a ring 34 which is exteriorly and interiorly screw-threaded. Opening into the lower portion 32 of the burner are air tubes 35 which merge in a central tube 36, and the central tube 36 and the exterior ring 34 support the outer and inner portions of the upper part of the burner.

The outer portion of the burner proper, that is the upper part, is formed of a tube 38 which is screwed within the ring 34, and the inner portion of the burner proper is formed by a tube 37 which is inserted in the central tube 36. The tops of these concentric tubes 37 and 38 are level and they support a wire gauze 39 through which the gas passes and upon which it burns, and the gauze is held in place by the sleeves 40, and 41, which fit respectively within the tube 37 and upon the tube 38, the sleeves having flanges at their upper ends, as shown in Fig. 1, which overlap the wire gauze and hold it firmly in place.

The burner supports the usual chimney holder which consists of a collar 42 which is screwed upon the ring 34, upwardly-extending diverging arms 43, the annular collar 44 secured to the outer ends of the arms, and adapted to support the chimney, and the upwardly-extending spring fingers 45, which are adapted to press upon the sides of the chimney and prevent its displacement. A wire rod 46, which forms a portion of the mantle

holder, extends vertically into a perforation in the collar 42 and is held there by a set screw 47, and this rod is bent outward, as shown at 48 near the base of the mantle so as to hold it some distance from the same, and prevent the mantle from being over-heated. It is also provided with covering 49 of non-conducting material, and it supports at its upper end an inwardly-extending ring 50, which ring is provided with radial wires 51 which support the conoidal mantle 52. This mantle fits over the upper end of the burner proper, and like the usual mantles is made of refractory gauze so that it may be heated to incandescence and will be sufficiently durable. The mantles usually employed have gas exits at the top, but we have found by experience that the closed mantle shown in the drawings, gives a much better result.

The gas is lighted in the usual way, that is, at the wire gauze 39; and by means of the chamber 12, the air mixer, the regulating cap 28 of the mixer, the reservoir 27 and the particular arrangement of the burner, the flow of gas may be accurately regulated, the exact quantity of air necessary for complete combustion may be mixed with it, and the lamp produces a clear light and is perfectly odorless.

It will be noticed that the burner has an entirely open clear ring through which the gas passes to the flame, and this arrangement together with the large central air draft makes the flame extremely hot and bright.

While in the construction of this lamp it will be observed that all the parts are so threaded together, it is obvious that any other manner of fastening that will produce gas tight joints can be employed.

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

1. In a gas lamp, the air mixer, comprising a gas supply pipe, an outer chamber screwed to the pipe and having inlet ports at the top, an inner chamber arranged within the outer chamber and connected therewith, the inner chamber embracing the gas supply pipe, and a regulating cap arranged above the outer chamber and adapted to close the air ports, substantially as described.

2. In a gas lamp, the air mixer, comprising a gas supply pipe, an outer chamber secured to the pipe and having air inlet ports at the top, an inner chamber arranged within the ports and embracing the gas supply pipe, said inner chamber having an opening around the pipe, an exit tube opening from the inner chamber, and a regulating cap screwed upon the tube and adapted to close the ports of the air chamber, substantially as described.

3. In a gas lamp, the air mixer, comprising a gas supply pipe having a conoidal discharge nozzle, an outer chamber mounted upon the pipe and having air inlet ports at the top, an inner chamber arranged within the pipe, and embracing the discharge nozzle, said inner chamber having an opening around the nozzle.

zle, an exit tube opening from the inner chamber, and a regulating cap threaded upon the tube and adapted to close the air ports, substantially as described.

5 4. In a gas lamp, the combination with a supply pipe provided with conical discharge nozzle having a regulating valve, of a chamber surrounding the nozzle, and provided with
10 air inlets closed by a valve, and a mixing chamber projecting into the first named chamber and into which the nozzle projects, substantially as described.

15 5. In a gas lamp, the combination with a supply pipe provided with a conical nozzle, of an air mixer into which the nozzle projects, provided with inlet openings adapted to be closed by a valve, a reservoir adapted to con-

tain resisting material, above the mixer and in communication therewith, and a burner above the said reservoir, substantially as described. 20

6. In a gas lamp, the combination with the burner, and chimney holder, of a vertical rod having an outward bend at the burner top and secured to the chimney holder, an inwardly
25 extending ring secured to the top of the rod, a mantle suspended from the ring, and a cover of non-conducting material for the said rod, substantially as described.

JOEL G. JACKSON.

ADDISON L. DANIELS.

Witnesses:

L. M. RUPERT,

CHARLES A. WINTER.