

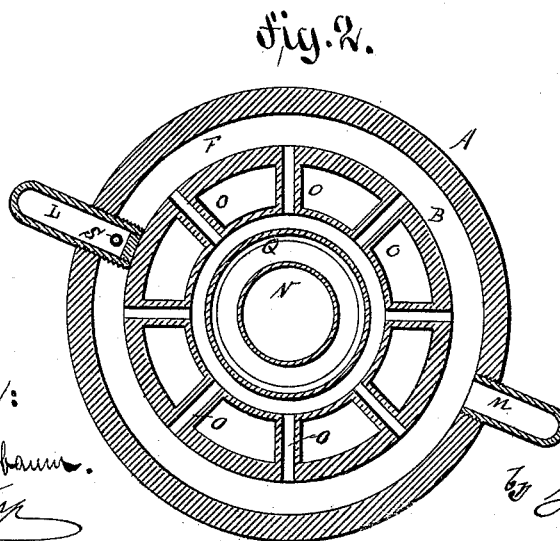
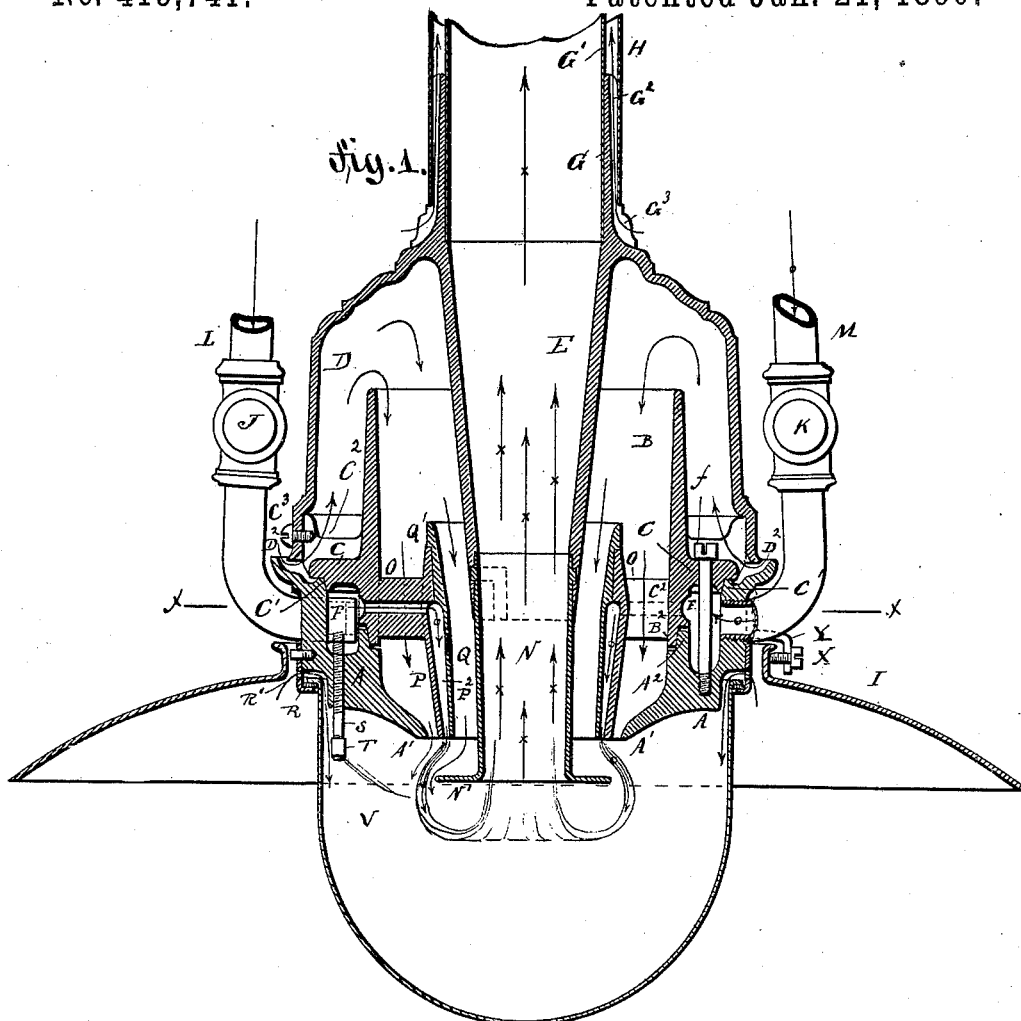
(No Model.)

2 Sheets—Sheet 1.

C. WESTPHAL.
GAS LAMP.


No. 419,741.

Patented Jan. 21, 1890.



Witnesses:

For H. Rosenbaum.
Carfax

 Inventor
Christ. Westphal
by G. H. & R. G.
Attorneys.

(No Model.)

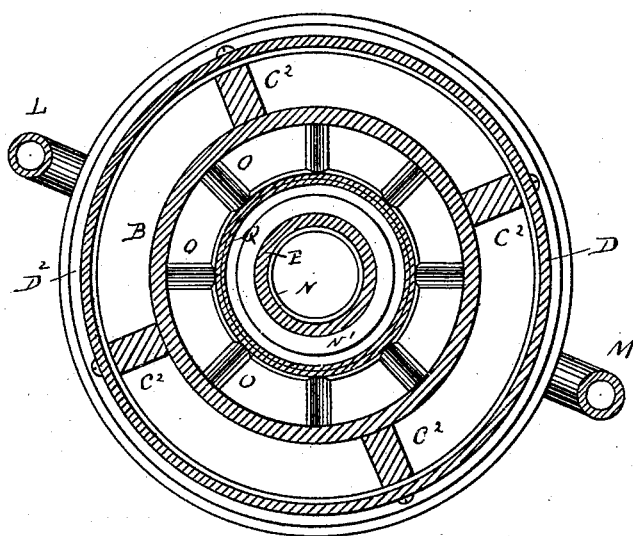
2 Sheets—Sheet 2.

C. WESTPHAL.
GAS LAMP.

No. 419,741.

Patented Jan. 21, 1890.

fig. 3.



WITNESSES:

Henry Huber,
Adrian Mann

INVENTOR

Christian Westphal,
BY *L. P. & R. Regener*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHRISTIAN WESTPHAL, OF BERLIN, GERMANY, ASSIGNOR OF ONE-HALF TO
JULIUS QUAGLIO, OF SAME PLACE.

GAS-LAMP.

SPECIFICATION forming part of Letters Patent No. 419,741, dated January 21, 1890.

Application filed September 14, 1887. Serial No. 249,612. (No model.) Patented in England February 3, 1886, No. 1,602; in Belgium April 24, 1886, No. 72,869; in Denmark April 27, 1886, No. 725; in Spain May 10, 1886, No. 9,296; in France May 11, 1886, No. 163,337, and in Italy June 30, 1886, No. 19,894.

To all whom it may concern:

Be it known that I, CHRISTIAN WESTPHAL, of Berlin, in the Kingdom of Prussia and Empire of Germany, have invented certain
5 new and useful Improvements in Gas-Lamps, (for which I have obtained Letters Patent in England, No. 1,602, dated February 3, 1886; in Denmark, No. 725, dated April 27, 1886; in Belgium, No. 72,869, dated April 24, 1886; in
10 Spain, No. 9,296, dated May 10, 1886; in France, No. 163,337, dated May 11, 1886, and in Italy, No. 19,894, dated June 30, 1886,) of which the following is a specification.

This invention relates to certain new and
15 useful improvements in regenerative gas-lamps; and the object of my invention is to provide a new and improved lamp of this kind, which is of simple construction, and can be taken apart, cleaned, and put together
20 again very easily.

The invention consists in the construction and combination of parts and details, as will be fully described and set forth hereinafter, and then pointed out in the claims.

25 In the accompanying drawings, Figure 1 is a cross-sectional view of my improved gas-lamp, parts being broken away. Fig. 2 is a horizontal sectional view of the same on line *x x*, Fig. 1. Fig. 3 is a horizontal sectional
30 view through the lugs C².

Similar letters of reference indicate corresponding parts.

All the parts of the lamp are supported by the base-ring A, which in turn is supported
35 by means of the gas-pipes or other suitable hangers. Said base-ring A is provided at its bottom with a downwardly and inwardly tapered annular flange A', forming a throat. At the top of its inner side it is provided with
40 a rabbet A², and behind said rabbet it is provided with an annular groove, forming part of the annular gas-chamber F. A cylinder B is provided at the bottom edge with a rabbet B², which fits closely and snugly on the rabbet
45 A² of the ring A, said rabbets being ground, so as to form a perfectly-tight joint, the inside of the cylinder B and the ring A being flush, as shown. The cylinder B is provided a short distance above its bottom edge with an out-

wardly-projecting collar or annular rib C, the
50 outer edge of which is rabbeted and also ground in, so as to fit tightly and snugly on a rabbet C', formed on the outer part of the ring A, at the upper edge, thereby preventing the escape of gas from the chamber F, formed by
55 these parts. Screws *f* are screwed through the flange or collar C into the ring A, said screws passing through the gas-chamber F, whereby said parts A and B are firmly united. The inner side of the flange or collar C' and
60 the outer sides of that part of the cylinder B below the flange or collar C complete the gas-chamber F, formed by the above-mentioned annular groove. The cylinder B is provided
65 with outwardly-projecting lugs C², the outer ends of which rest against the inside of the cylindrical exterior casing D at the bottom part of the same. Screws C³ are screwed
70 through the bottom parts of the sides of the casing D into the ends of said lugs C², for the purpose of uniting the casing D with the parts A and B. From the top of the casing D the tapered
75 flue or chimney E extends downward and the neck G projects upward, and into the said neck the sheet-iron chimney G' is placed, and on the outside the chimney H is placed,
80 an air-space being formed between the chimneys G' and H. Grooves G² are formed in the outside of the neck G and extend in length over said neck, the lower ends of said
85 grooves communicating with apertures or recesses G³ at their lower ends, so that air can pass up between the chimneys G' and H, whereby the lamp acts as a ventilator. From the inside of the cylinder B a series of short
90 radial tubes O project inward, which tubes unite at their inner ends in a slightly-tapered cylinder P, the greater part of which projects downward from the ends of said radial tubes and the shorter part projects upward.
95 The said cylinder P is made integral with the cylinder B, and forms part of the burner, which burner is completed by a tapered cylindrical section Q, placed within the cylindrical section P, and provided near its upper edge with an exterior shoulder Q', which rests upon the top edge of the cylindrical part P. The inner sides of the cylindrical sections P

and Q are recessed so as to form the burner-cavity P^2 between them, the walls of said cavity gradually approaching each other toward their lower ends, so as to form the annular burner-slit, which is in the same plane with the bottom edge of the flange A' , the edge of said flange surrounding the bottom part of the burner and being a short distance from the same. The bores of the tubes O establish communication between the annular gas-chamber F and the chamber P^2 of the burner, thus permitting the gas to pass from the gas-chamber through the bores of said tubes into the chamber of the burner and to pass out through the bottom annular slit of said burner. The cylindrical porcelain tube or neck N, having the outwardly-projecting annular bottom flange N' , is inserted into the lower end of the upwardly-projecting flue E, and is fastened to the same by means of a bayonet-joint. (Shown in dotted lines.) The lower end of the flue E is, as shown, about one-third of the height of the burner below the upper edge of the same. The diameter of the porcelain neck N is less than the internal diameter of the burner, so that an annular air-space is formed between the inside of the inverted annular burner and the porcelain neck, and the bottom flange N' of the neck N is some distance below the bottom edge of the burner. The gas-conducting tube M conducts the gas into the annular gas-chamber F, and is provided with a cock K. On the opposite side of the lamp a pipe L extends down into the gas-chamber F; but that end of the pipe within the gas-chamber is plugged and closed, as shown in Fig. 2, so that no gas can escape from said pipe L into the gas-chamber.

A burner-tube S extends from that end of the pipe L within the gas-chamber down through the said gas-chamber and through the ring A, projecting from the bottom of the same, and on the lower end of said burner-tube S the jet-burner T is provided. Said pipe L is provided with the cock J. Below the bottom edge of the casing D ducts D^2 are provided, and are preferably formed in the top edge of the outer side of the ring-shaped part A, through which ducts air can enter into the casing D, as shown by the arrows. A ring R is secured by means of screws at the outside of the ring-shaped part A, and is provided a short distance below an exterior shoulder of the ring-piece A with an inwardly-projecting flange. The glass globe V is fastened by means of a bayonet-joint on said ring R. The ring R is provided a short distance above its bottom flange with apertures R' , through which air can pass directly into the globe. A series of curved or angular arms Y project from the outside of the ring-shaped part A', and in the ends of the same screws X are held, on which the upper exterior flange of a reflector I rests, whereby said reflector is supported on the lamp.

In the drawings the plain arrows indicate

the course of the air. The arrows having a small circle at about the middle of their length indicate the passage of the gas, and the arrows bearing an x at the middle of their length indicate the passage of the products of combustion.

The cock J of the pipe L is opened, the globe V removed, and the gas-jet u , issuing from the igniting-burner T, ignited. The glass globe is then replaced, and when the light is desired the cock K is opened so as to permit the gas to pass from the pipe M into the annular gas-chamber F, from where it passes through the radial tubes O into the cavity p^2 of the burner and shoots from the bottom annular slit of said burner, where it is ignited by the jet-flame U. The flame is deflected by the flange N' of the porcelain neck N, as shown, and is curved around said flange and upward to the inner side of the neck N. The products of combustion pass upward through the flue or chimney E and the chimney G' . The air that enters through the apertures or ducts D^2 passes through the annular chamber between the casing D and the cylindrical part B and passes down over the top edge of said cylindrical part and down between the exterior wall of the burner and the ring-shaped part A, and is guided by the curved tapered bottom flange A' of said part A toward the bottom edge of the burner. Some of the air also circulates through the annular space between the inner side of the burner and the outside of the bottom part of the flue or chimney E and the outside porcelain neck N and passes down between the inner side of said burner and the neck K. The air becomes heated by circulating, as described, and a short time after the gas issuing from the annular burner has been ignited the hot air causes a more perfect combustion and produces a very bright and brilliant flame.

Air is drawn into the globe V through the aperture R' , and is heated and drawn up through the middle part of the flame, causing a more perfect combustion and preventing smoking.

This lamp is of very simple construction. It consists, essentially, of the parts A, B, D, and Q, which can all be made of cast-iron, and the porcelain neck N. The parts are easily united or taken apart in case it becomes necessary to repair or clean the lamp. The latter is hardly necessary, as the combustion is so perfect as to cause hardly any deposit of soot. It is evident that the joints of the parts forming the gas-chamber and the two tapered cylindrical parts forming the burner must be ground in very accurately, so as to prevent any escape of gas.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a gas-lamp, the combination of a base-ring having an annular groove in its top edge, said groove forming part of a gas-chamber,

a cylinder on the base-ring provided with a flange which completes the gas-chamber, a casing connected with the cylinder and provided with air-inlets, a flue or chimney projecting downward from the top of said chamber, a neck on the lower end of said flue, a burner surrounding the neck and supported by the base-ring, and gas-supply pipes connected with the gas-chamber, substantially as shown and described.

2. In a gas-lamp, the combination of a base-ring provided in its top edge with an annular groove, a cylinder resting on and secured to the base-ring, an external annular flange on said cylinder resting on the top exterior edge of the base-ring, the bottom edge of the cylinder resting on the top interior edge of the base-ring, a casing fastened to the cylinder and provided with air-ducts, a flue or chimney projecting downward from the center of the top of the casing, a neck on the lower end of the flue or chimney, an annular burner surrounding the neck, inwardly-projecting radial tubes on the cylinder, which tubes are connected with the burner, and a gas-supply pipe connected with the gas-chamber formed by the annular groove or recess in the top of the base-ring, substantially as set forth.

3. In a gas-lamp, the combination of a base-ring provided in its top edge with an annular groove and with rabbets on the upper edges of the annular ridges formed at the exterior and interior of said groove, a cylinder provided on its bottom edge with a rabbet fitting on the interior rabbet of the base-ring, an annular external flange on said cylinder, which flange is also provided with a rabbet fitting on the exterior upper rabbet of the base-ring, radial tubes projecting from the interior of the cylinder, an annular burner supported by the inner ends of said tubes, a casing provided with air-ducts, which casing is supported by the cylinder, a chimney or flue projecting downward from the top of the casing, a neck secured to the lower end of the chimney and surrounded by the burner, and a gas-supply pipe connected with the gas-chamber formed by the annular groove in the top of the base-ring, substantially as set forth.

4. In a gas-lamp, the combination of a base-ring having an annular groove in its top and also having a downwardly and inwardly inclined tapered bottom flange, a cylinder rest-

ing on the base-ring, an exterior annular flange on said cylinder, screws passed through said flange and screwed into the base-ring, radial tubes projecting from the interior of the cylinder, a burner supported on the inner ends of said tubes, a casing held on the cylinder and provided with air-ducts, a flue or chimney projecting downward from the top of the casing, a neck attached to the lower end of said chimney or flue and surrounded by the burner, and a gas-supply pipe connected with the gas-chamber formed by the groove in the top of the base-ring, substantially as set forth.

5. In a gas-lamp, the combination of the base-ring A, the cylinder B, the tubes O, projecting inward from the cylinder, a tapered cylindrical piece P on the inner ends of said tubes and made integral therewith, a tapered cylindrical part Q, inserted in the cylindrical part P and provided near its upper edge with an exterior shoulder resting on the top edge of the cylindrical part P, the inner ends of the cylindrical parts P and Q being recessed to form the annular cavity P² of the burner, the casing D, the neck N on the lower end of the chimney, and a gas-supply pipe connected with the gas-chamber formed by an annular groove in the top of the base-ring, substantially as set forth.

6. In a gas-lamp, the combination, with a base-ring, cylinder, burner, and casing, of a flanged ring held on the base-ring, a glass globe suspended from said flanged ring, said flanged ring having inlet-openings to admit air into the globe, and a gas-supply pipe connected with a gas-chamber formed by an annular groove in the top of the base-ring, substantially as set forth.

7. In a gas-lamp, the combination, with the base-ring A, of the cylinder B, having the exterior lugs C², the casing D, secured to said lugs, the tubes O, made integral with the cylinder, an annular burner P Q, connected with said tubes, the flue E, the neck N, and a gas-supply pipe M, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

CHRISTIAN WESTPHAL.

Witnesses:

A. MÜHLE,
B. ROI.