(No Model.)

J. F. McELROY.

GAS LAMP.

No. 569,562. Patented Oct. 13, 1896.

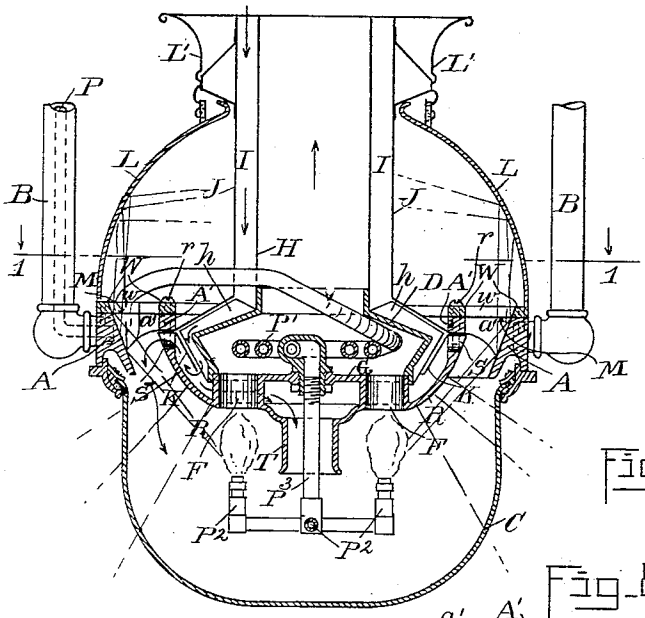

Fig. 1.

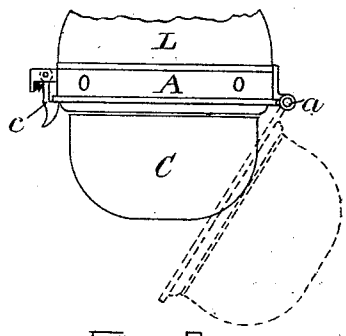

Fig. 3.

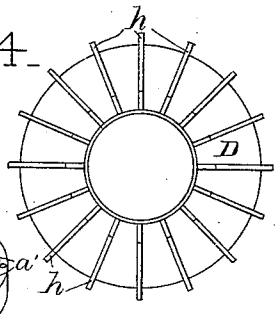

Fig. 4.

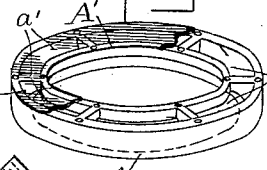

Fig. 8.

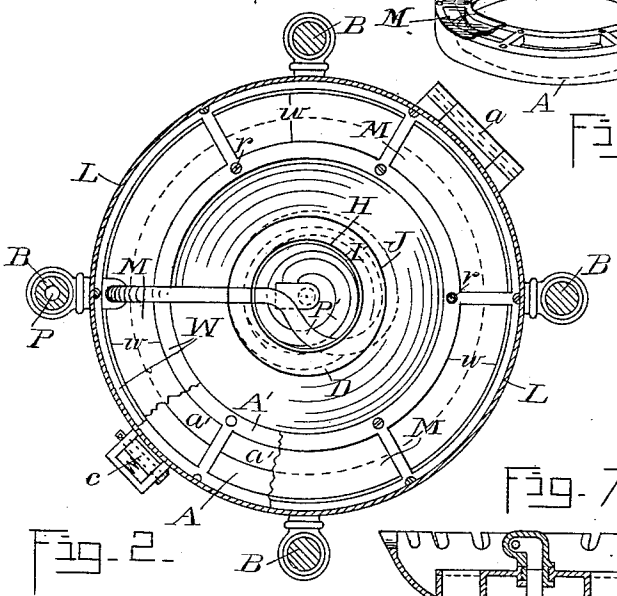

Fig. 2.

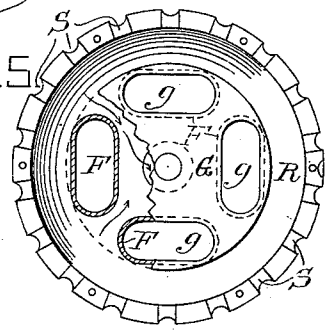

Fig. 5.

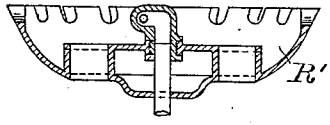

Fig. 7.

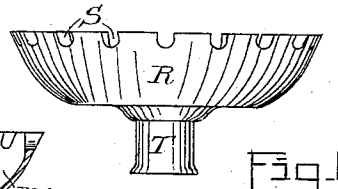

Fig. 6.

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UNITED STATES PATENT OFFICE.

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GAS-LAMP.

SPECIFICATION forming part of Letters Patent No. 569,562, dated October 13, 1896.

Application filed November 17, 1894. Serial No. 529,174. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. McELROY, a citizen of the United States, residing in the city and county of Albany, State of New York, have invented a new and useful Improvement in Gas-Lamps, of which the following is a specification.

My invention relates to lamps and lanterns especially adapted for use in railway-cars; and the object of my invention is to produce a lamp in which the air and the gas used in combustion shall be heated by the operation of the lamp and so constructed as to obtain the greatest amount of illuminating power. I attain this object by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section. Fig. 2 is a horizontal section along the line 1 1 on Fig. 1. Fig. 3 is an elevation showing the method of securing the globe. Fig. 4 is a plan of the separating-tube D. Fig. 5 is a plan of the reflector R, with part of the disk G broken away. Fig. 6 is an elevation of the reflector R. Fig. 7 is a section of a modified form, R′, of the reflector R; and Fig. 8 is a perspective view of the ring A.

Similar letters refer to similar parts throughout the several views.

A represents the outer ring or body of a lamp, which ring may be made of cast-iron or other suitable material, and which is fastened by rods B to the roof of the car. I arrange a ring A′ within the ring A, preferably of cast-iron, in connection with the ring A, but provided with air-spaces a'. The globe C is hinged to the ring A at a and held in position when closed by the spring-catch c. (Shown in Fig. 3.) The reflector R is secured by bolts r or in any other suitable manner to the ring A′. The edge of the reflector R is provided with a series of air-spaces S, formed by corrugating the upper edge of the reflector.

I construct a downwardly-projecting tube T, extending from the lower surface of the reflector R, allowing for the passage of the gas-pipe P^3, but larger than the gas-pipe, leaving a space for the air to pass downward, as indicated by the arrows in Fig. 1. In the reflector R, I also arrange tubes F, extending upward from the upper surface of the reflector, to correspond to the number of burners used in the lamp. To the tubes F, I secure a disk G, which disk G is provided with openings g, registering with and corresponding to the tubes F in the reflector. I preferably cast the reflector R, tubes F, and disk G together. Secured to the disk G, I arrange a lower chimney D, provided with sides flaring outward at about midway between its ends and contracted toward each end, resting on the upper edge of the disk G at its lower extremity and at its upper extremity connected with the sides of the upper chimney H. Along the upper surface of the side of the lower chimney D, I usually arrange a series of ribs h, for the purpose of obtaining as much metallic heating-surface as possible. About the upper chimney H, but separated therefrom by an air-chamber I, I place the enveloping pipe J, which is secured between the ring A′ and upper edge of the reflector R. Secured in the same way and extending parallel to the lower side of the lower chimney D, I arrange a downwardly-projecting ring K of tin or other suitable substance, which is thus placed between the interior surface of the reflector and the lower surface of the lower chimney and is used for the purpose of causing the air entering the lamp from the top passing through the air-space between the upper chimney H and the enveloping pipe J to circulate in contact with the exterior surface of the lower chimney D, following the direction of the arrows shown in Fig. 1.

The dome L, secured to the ring W, is supplied with a suitable ornamental crown L′, as shown in Fig. 1.

For the purpose of introducing gas I arrange the pipes P in one of the rods B, supporting the lamp, and conduct the same through a horizontal coil P′, placed above the disk G and within the lower chimney D, connecting with the burners P^2 by the pipe P^3.

On top of the rings A and A′ and covering the openings a' I place a mica ring M, which is secured by the ring W. The ring W has openings w, corresponding to the openings a', and is secured to the rings A and A′ in any suitable manner. The mica ring pre-

vents the air which passes through the spaces S S in the top of the reflector from ascending into the dome, but which will allow the light to penetrate therein. The lower surface of the reflector has porcelain placed thereon, as has also the interior surface of the ring A.

By the construction of my lamp I provide for successfully heating the gas before burning, the coil P′ being directly above the burners, and the gas passing immediately from the coil to the burners. I also heat the air which enters the lamp through the flue I and passing downward comes into contact with the hot metallic surface of the lower chimney, and passing downward through the air-space in the reflector comes into contact with the burning gas and rises through the upper chimney H after assisting in heating the coil P′. By arranging the tube T on the bottom of the reflector I allow for the escape of hot air beneath the disk G downward around the gas-pipe P^3.

In Fig. 7 I show the reflector R′ arranged in every respect similar to the reflector R, with the exception that I in the modified form omit the tube T and provide simply an opening in the bottom of the reflector for the passage of the gas-pipe P^3 and the openings for the burners, thus closing the air-space about the pipe P^3.

By my arrangement I provide for the greatest possible efficiency obtainable in a lamp, since I subject the gas to be burned to a great heat and at the same time raise the temperature of the air used in combustion to a very high degree. The result is that the flame of my lamp is white and burns steadily, and the dome of the lamp is illuminated.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a lamp, an outer ring, an inner ring attached thereto, air-spaces between said rings, a lower globe hinged to said outer ring, a reflector and disk secured to said inner ring, a transparent material covering said air-spaces, and a burner and chimney, substantially as described and for the purpose set forth.

2. In a lamp, a reflector provided with openings immediately above the burner, a plate arranged above said reflector provided with openings registering with the openings in the reflector, a coil of pipe adapted to carry gas to the burner placed above said plate, a transparent globe opening downward and surrounding said burners, arranged in such a manner that the dome of the lamp is illuminated, substantially as described and for the purpose set forth.

3. In a lamp, a reflector provided with a series of openings along its upper surface, a series of tubes extending upward from the lower surface of said reflector, a plate placed above said reflector, said reflector, plate and tubes joined together, a coil adapted to conduct gas to the burner, a lower chimney resting upon said plate and connected at its upper extremity with an upper chimney, said lower chimney provided with a series of metallic ribs, a dome, a globe around the burner, a mica ring between the dome and the globe of the lamp, substantially as described and for the purpose set forth.

4. In a lamp, the combination of a reflector, a gas-burner, a series of openings through the reflector corresponding to the number of burners, a coil of gas-pipe arranged above said reflector, with a lower chimney flaring outward about midway between its ends, connected at its upper extremity with the upper chimney, with an enveloping tube placed about said upper chimney so arranged that the air passing downward between the upper chimney and the enveloping tube shall come into contact with said lower chimney and be conducted to the burner, substantially as described and for the purpose set forth.

5. In a lamp, the combination of the burner and transparent globe placed about said burner, and a reflector placed above said burner and provided with chimney-openings therethrough, means located in the line of draft above said openings for heating the gas, with communication therefrom to the burners, and means for heating the air used in combustion consisting of passage-ways formed around the chimney and in a chamber around the draft-holes in the reflector, openings leading therefrom interiorly with reference to the burners, and opening from said heating-chamber leading from the periphery of the reflector-plate exteriorly with reference to the burners, whereby the draft is equalized around the flame of the burners, substantially as described and for the purpose set forth.

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