(No Model.) 2 Sheets—Sheet 1.

G. ROBERTS.

COAL OIL LAMP.

No. 418,532. Patented Dec. 31, 1889.

Fig. 1.

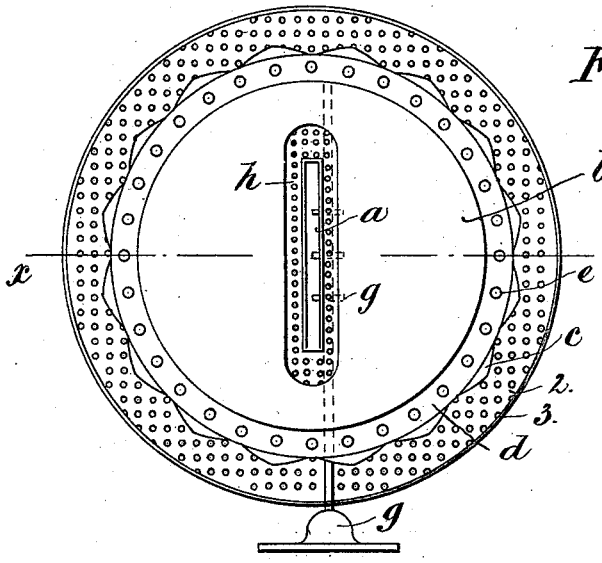
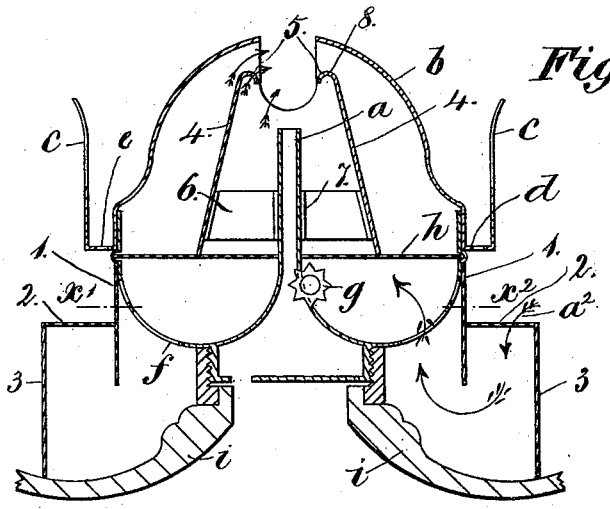


Fig. 2.



Witnesses.
James Adams
Alfred A. Simpson

Inventor.
George Roberts
By his Attorney
Charles G. Simpson

(No Model.) 2 Sheets—Sheet 2.

G. ROBERTS.

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Fig. 3.

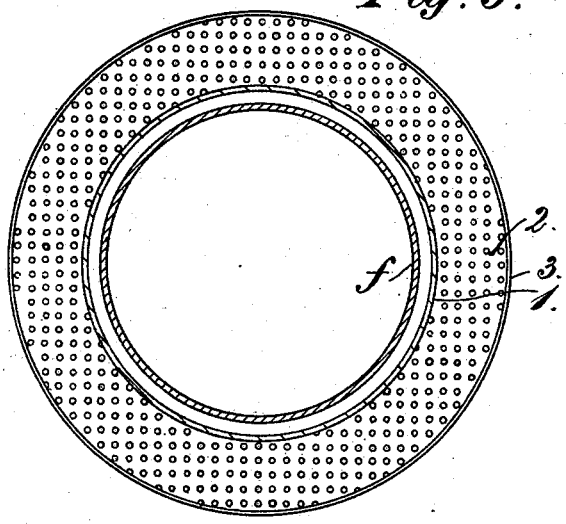


Fig. 6.

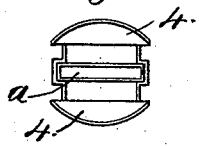


Fig. 7.

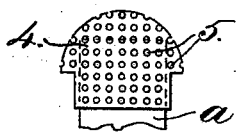


Fig. 4.

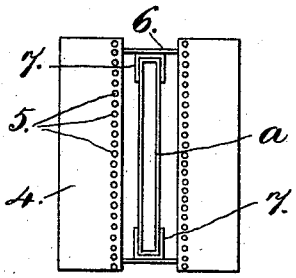


Fig. 8.

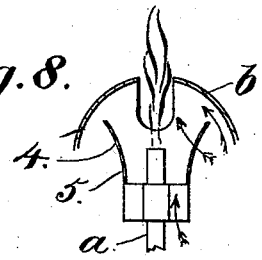
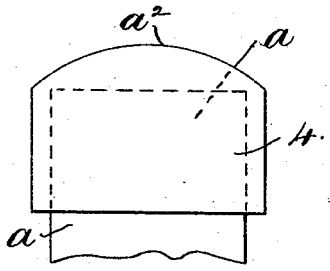


Fig. 5.



Inventor.

George Roberts

By his Attorney

Charles G. L. Simpson

Witnesses.

James Adam

Alfred A. Simpson

UNITED STATES PATENT OFFICE.

GEORGE ROBERTS, OF MONTREAL, QUEBEC, CANADA.

COAL-OIL LAMP.

SPECIFICATION forming part of Letters Patent No. 418,532, dated December 31, 1889.

Original application filed July 15, 1889, Serial No. 317,526. Divided and this application filed September 9, 1889. Serial No. 323,366. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ROBERTS, a subject of the Queen of Great Britain, residing at the city of Montreal, in the district of Montreal and Province of Quebec, Canada, have invented new and useful Improvements in Coal-Oil Lamps; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to improvements in coal-oil lamps; and the present application is a subdivision of the invention for which I made application for a patent for "improvements in coal-oil stoves," which application was filed on the 15th day of July, A. D. 1889, Serial No. 317,526, the present invention being another species of the same genus set forth in the said prior application.

The present invention consists in providing an ordinary lamp-burner with two cylinders and a perforated amulet placed outside the burner and two diaphragms placed inside the cap of the burner beside the wick-tube; and the object of my invention is to enable lamps to burn even a low grade of coal-oil without any perceptible smell, smoke, or vapor.

I attain my object by the construction illustrated in the accompanying drawings, in which similar letters and numerals of reference indicate like parts.

Figure 1 is a plan of a coal-oil-lamp burner in which my invention is embodied. Fig. 2 is a central vertical section of the coal-oil-lamp burner shown in Fig. 1, taken at line x in that figure. Fig. 3 is a horizontal section of the shell f and cylinder 1, taken on lines x' x^2 in Fig. 2, and showing in plan the perforated amulet 2. Fig. 4 is a plan view of the wick-tube a and plates 4 detached. Fig. 5 is a side elevation of wick-tube a and plates 4 detached. Fig. 6 is a plan view of the wick-tube a and plates 4 modified for applying to small burners of coal-oil lamps. Fig. 7 is a side elevation of the parts shown in Fig. 6. Fig. 8 is an end elevation of the parts shown in Figs. 6 and 7.

Letter a is the wick-tube. b is the cap. c is the flange for holding the chimney. d is the base, provided with perforations e. f is the lower shell of the burner. g is the wick-adjuster. h is a perforated diaphragm, and i is a portion of the upper part of an oil-fount. All these parts are as at present in use in an ordinary coal-oil-lamp burner. It is not absolutely necessary to have the said parts arranged exactly as shown, because they may be modified in a great number of ways; but as my invention must be shown in connection with at least some one kind of burner of a coal-oil lamp, I have chosen this kind of burner to illustrate it by.

My invention consists in adding to the burner arranged as above mentioned a cylinder 1, which is soldered to the shell f and extends down about half-way from the level of the diaphragm h to the top side of the fount i. To this is soldered an amulet 2, of perforated sheet metal, and to the said amulet is soldered a cylinder 3, the lower edge of which is made to fit closely to the top of the fount i.

While nothing like the trouble and expense of making the edge of the cylinder 3 an air-tight fit to the top of the fount i is intended, yet it will be made so close that all but a very small portion of the body of air passing to the lamp will be obliged to pass (as indicated by the arrow a') through the perforated amulet 2 and under the bottom edge of the cylinder 1; thence it passes into the shell f.

Within the cap b are situated, as shown, two plates 4. (See Figs. 2, 4, and 5.) The upper edges of these are curled or bent over and provided with perforations 5. Furthermore, the upper edges are preferably made curved or arched, as shown at a^2 in Fig. 5. The plates 4 may be held in position in a number of ways, as shown. They are attached together by a cross-bar 6 at each end, and to each of these is soldered or riveted a spring-clasp 7, which grips upon the wick-tube a, so that the height of the plates may be adjusted, if desired, and this manner of connecting the plates 4 with the wick-tube is very convenient, as they are easily removed for cleaning both them and the inside of the burner.

The air passing to the lamp, having arrived within the shell f, as hereinabove described, ascends through the perforated plate h. Part

of it passes between the plates 4 and the wick-tube *a*. The air inclines naturally to pass vertically up and is brought into intimate contact with the plates 4, which, after the lamp has been lighted a few seconds, become highly heated at the top. Consequently the air that comes in contact with them becomes heated in proportion, and, being caught by the curls 8 and caused to pass through the perforations 5, is projected against the flame from the wick-tube in the form of jets of hot air. Thus the flame is acted upon by three separate currents of air on each side, (or six, counting both sides,) as indicated by the arrows under the cap *b* in Fig. 2.

I have found that the invention constructed as shown by Figs. 1, 2, 3, 4, and 5 does not answer as well on small burners as upon large ones. The modification shown by Figs. 6, 7, and 8 is particularly adapted to small burners. Here the plates 4 are curved gently outward, producing the same effect of three currents of air at each side of the flame, as indicated by the three arrows in Fig. 8.

The air passing to the lamp, as indicated by the arrow *a'*, keeps the fount cool, and by the arrangement of the parts the currents of air in the room or place where the lamp is located are prevented from acting on the flame from the burner, and by this the plates 4 are more uniform in the effect produced by them upon the flame.

What I claim is as follows:

1. The combination, with a coal-oil-lamp burner, as described, of the cylinders 1 and 3, perforated amulet 2, cap *b*, having inner plates 4, provided with curls or arches 8 and perforations 5, whereby the air passing to the flame of the burner is divided within the cap *b* into three parts on each side of the flame, and with perforated plate *h*, the whole substantially as described.

2. The combination, with a coal-oil-lamp burner and fount, as described, of the cylinders 1 and 3, perforated amulet 2, arranged to cause the air to pass through the amulet 2, with the plates 4, having arched or curled portions 8 and perforations 5, said plates 4 being arranged to divide the air, the whole substantially as described, for purposes set forth.

GEORGE ROBERTS.

Witnesses:
CHARLES G. C. SIMPSON,
A. A. SIMPSON.