

(No Model.)

2 Sheets—Sheet 1.

C. CLAMOND.
ILLUMINATING BURNER.

No. 282,053.

Patented July 31, 1883.

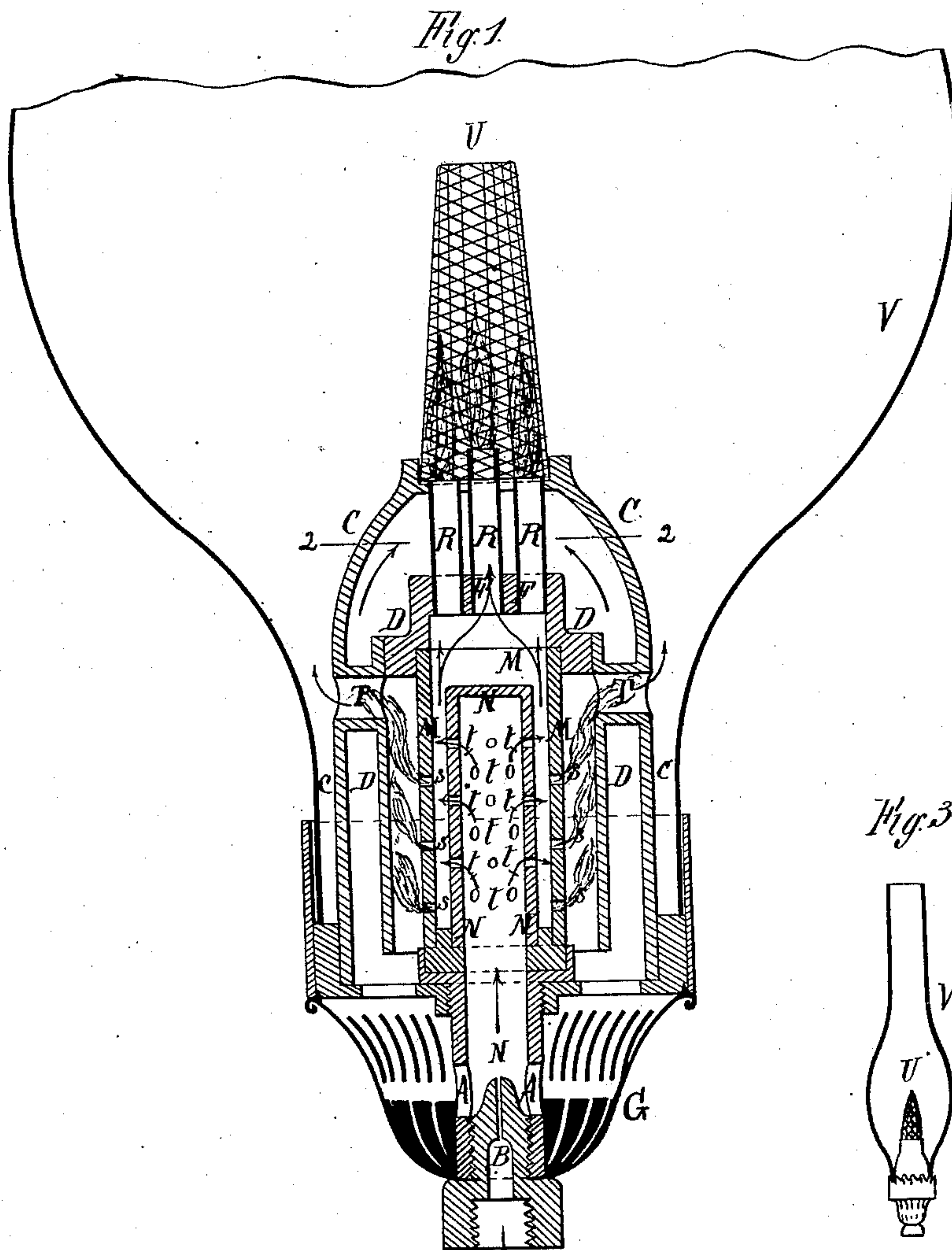


Fig. 3

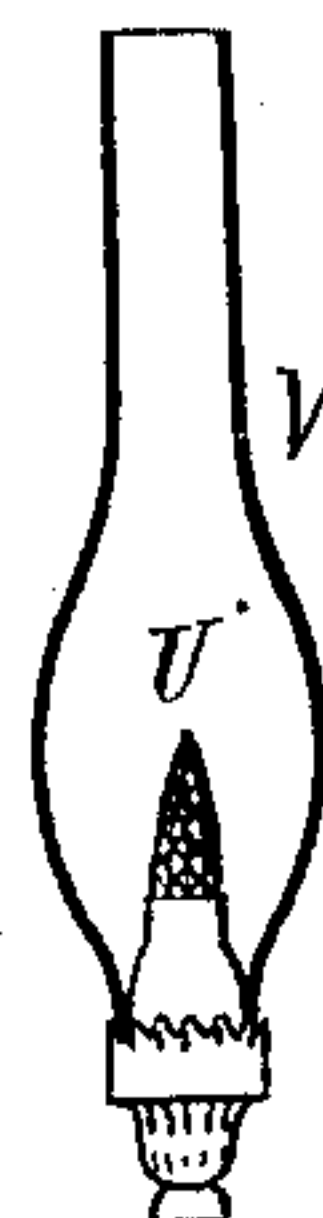
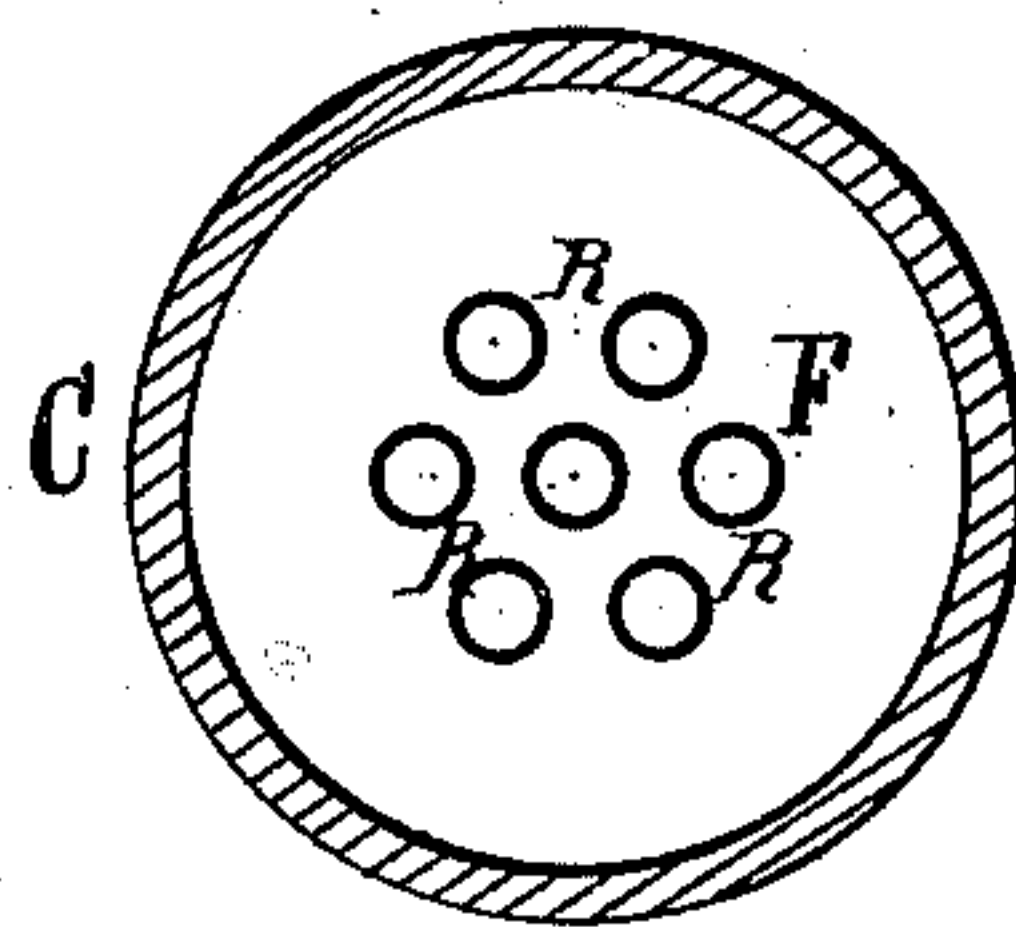


Fig. 2



WITNESSES:

E. B. Rolton

Geo. S. Sinton

INVENTOR:

Charles Clamond

By his Attorneys,

Burke, Fraser & Connell

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Fig. 4

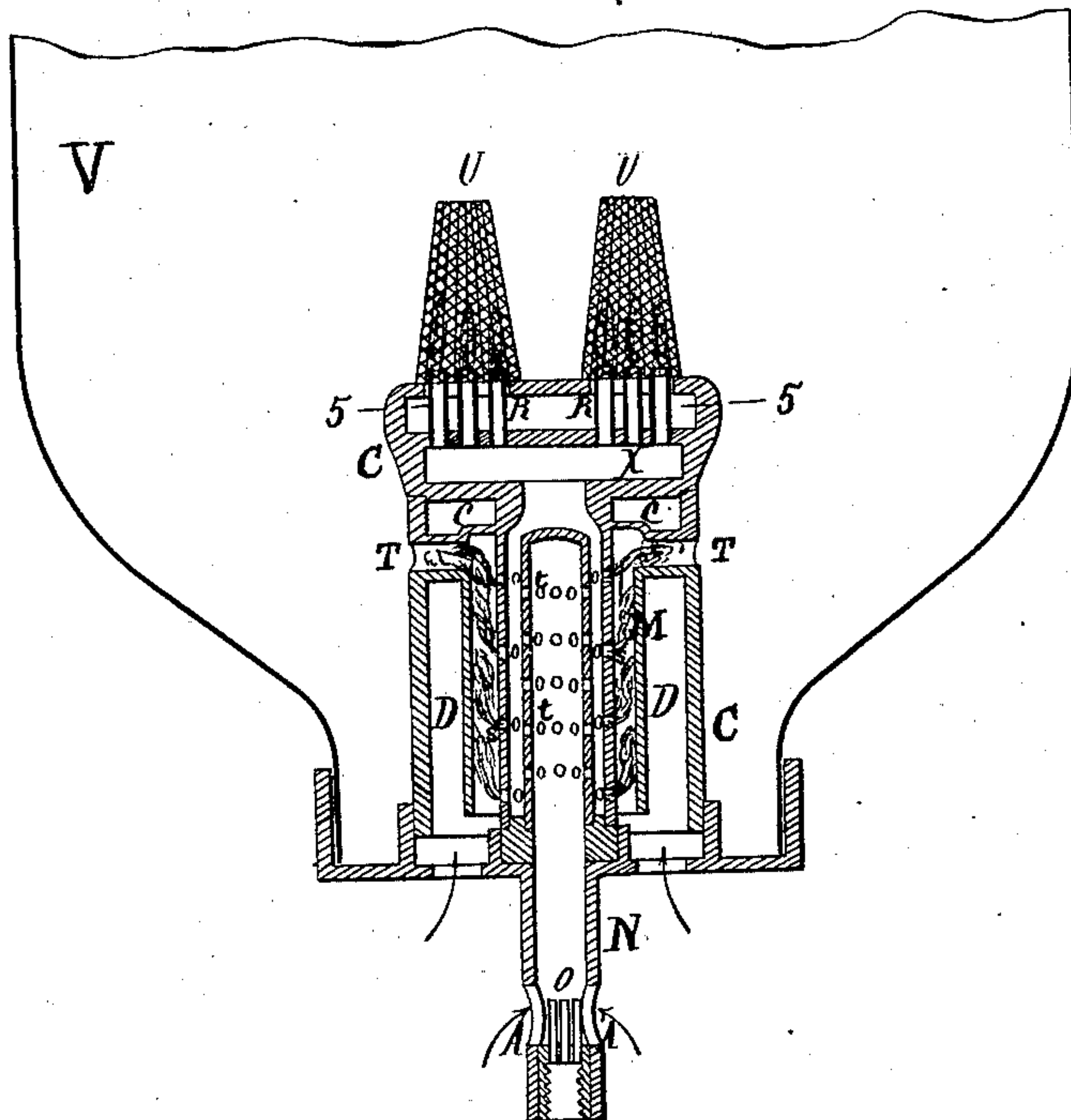
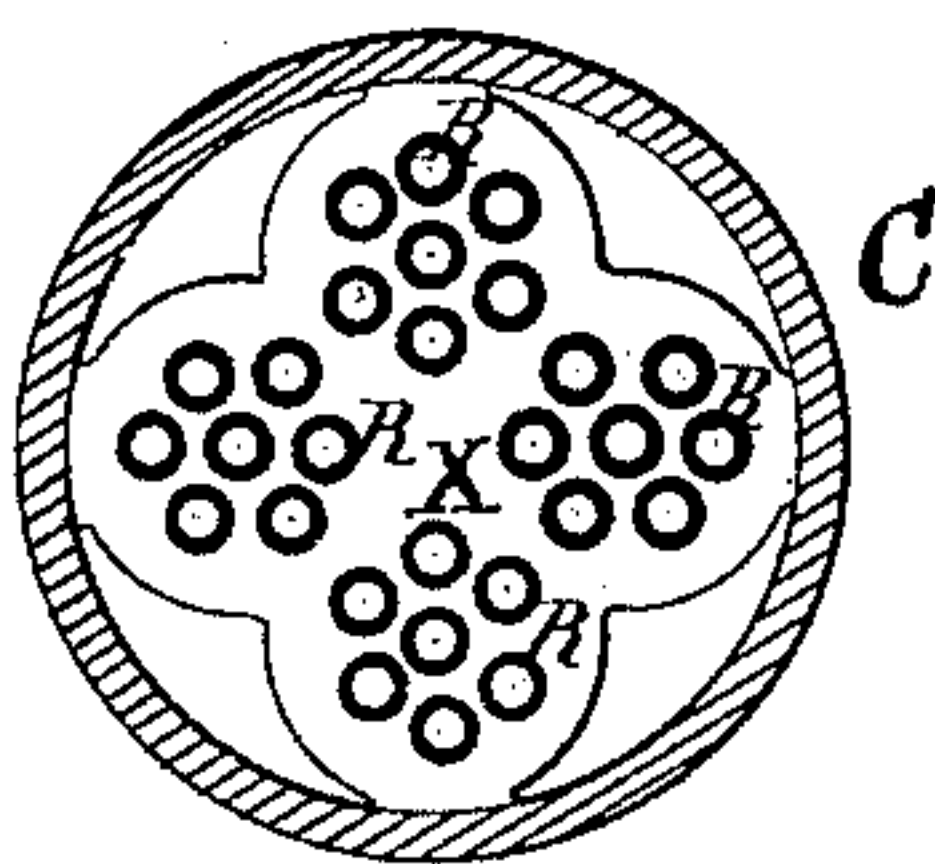


Fig. 5



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES CLAMOND, OF PARIS, FRANCE.

ILLUMINATING-BURNER.

SPECIFICATION forming part of Letters Patent No. 282,053, dated July 31, 1883.

Application filed June 9, 1883. (No model.) Patented in France June 7, 1881, No. 136,771; in Italy April 26, 1883, No. 15,389; in Belgium May 1, 1883; in Germany May 2, 1883; in England May 5, 1883, No. 2,290, and in Austria May 10, 1883.

To all whom it may concern:

Be it known that I, CHARLES CLAMOND, a citizen of the French Republic, residing at Paris, France, have invented certain Improvements in Illuminating-Burners, of which the following is a specification.

My present invention, like that shown in my former patent, dated July 25, 1882, is based on raising to incandescence a cage or basket composed of filaments of magnesia, or other like refractory material, by means of a mixture of air and gas heated nearly to the point of combustion and ignited.

My present improvements have for their objects to avoid the blast of air under pressure, and to obtain the same effects by simple respiration of the surrounding air.

In the drawings, which serve to illustrate my invention, Figure 1 is a vertical axial or mid section of my burner in its approved form, and Fig. 2 is a horizontal section on line 2 2 in Fig. 1. Fig. 3 is a view on a small scale, showing the entire chimney of the burner. Fig. 4 is a vertical mid-section, illustrating a slight modification; and Fig. 5 is a horizontal section of same on line 5 5 in Fig. 4.

C and D are concentric envelopes, connected together at the top and mounted on a perforated metal base, G, and provided with radial tube-like passages T, which connect the space exterior to C with the space interior to D. In the axis of these envelopes are mounted concentric tubes M and N. The interior tube, N, is closed at the top and provided with perforations *t t* in its sides, and the exterior tube, M, is also closed at the top by a species of cap, F, and provided with perforations *s s* in its sides. In the cap F are fixed a cluster of tubes, R R, (see also Fig. 2,) which project up through the dome of envelope C into a cone-like cage, U, made from filaments of magnesia or other similar material.

The parts C, D, F, M, N, and R are made, by preference, from some ceramic material. The cage U is made, by preference, but not necessarily, of the form shown in Fig. 1, and is mounted on the top of C.

The axial tube N projects down through G, and in its lower end is screwed a tube, B, for the admission of gas.

A A are apertures in the sides of N, just above tube B.

The gas enters at B, and in its upward flow draws in air at A A. This mixture of gas and air passes up through N, but cannot escape at the top, and must, in consequence, flow out through the perforations *t t* into the annular space between M and N. The major portion then flows up into the top of M and out through the slender tubes R R, at the upper ends of which it is ignited and burns with a blue flame within the cage U. A smaller portion of the mixed gas and air flows through the perforations *s s* in M and is ignited, burning between the exterior of M and the interior wall of D. The products of combustion pass off at T T into the chimney V, which is usually of glass, and which serves to impart activity to the draft. The surrounding air enters G, and, rising, occupies the spaces between C and D, which spaces serve to store it while it is being heated. The heated air is supplied to the burning-points through A A and under the lower edge of D. That which passes under the free lower edge of D supplies the exterior heating-jets at *s s*. Thus it will be seen that the mixture of gas and air which passes up through N on its way to the illuminating-point—namely, the cage U—becomes highly heated by impinging against the wall of tube M and the walls of the lesser tubes R, around and among which the hot air circulates exteriorly. The jets at the upper ends of tubes R burn wholly within the cage U, and, owing to the intense heat produced by the combustion of the heated air and gas at this point, the temperature of the magnesian cage is raised to vivid incandescence and produces intense white light.

In Figs. 4 and 5, I have shown my invention applied in a slightly different manner. In this case I employ several cages U of magnesia filaments, and as many clusters of tubes R R. The gas also enters, or may enter, through a cluster of small tubes, *o*, at the bottom of tube N. X shows the enlargement of the tube M, to form a supply-chamber for the four cages U. The chamber X does not prevent the hot air from reaching the tubes R and circulating among them, as it does not entirely fill the interior of the outer envelope, C. This is shown in Fig.

5. One chimney, V, serves for the burner, as in Fig. 1.

Any number of cages U may be employed in each burner.

5 Having thus described my invention, I claim—

10 1. In an illuminating-burner wherein the mixture of gas and air is heated on its way to the burning-point, the combination, with the perforated and capped admission-tube, of the perforated exterior tube, M, arranged to house the interior tube and to lead the main portion of the gases to the illuminating-point, and to permit a small portion of said gases to escape and burn exterior to tube M, substantially as
15 and for the purposes set forth.

20 2. The combination, in a burner wherein the mixture of gas and air is heated on its way to the burning-point, of the inner perforated and capped tube, N, provided with means for admitting gas and air at its exterior extremity, the perforated tube M, arranged exterior to the

tube N, and provided with a cap, F, the exterior envelope, C, the tubes R, the envelope D, and the cage U, all arranged to operate substantially
25 as set forth.

3. In an illuminating-burner wherein the mixture of air and gas is heated on its way to the burning-point, the means herein described for heating the main column of gases by means
30 of small jets borrowed from the same, which consists of the inner perforated tube, N, closed at the top and perforated at the sides, the tube M, provided with jet-perforations s s, for heating, the exterior envelope, C, and the envelope
35 D, arranged between C and M, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CHARLES CLAMOND.

Witnesses:

ROBT. M. HOOPER,
AMAND RITTER.