(No Model.) 2 Sheets—Sheet 1.

C. SEEL.

BUNSEN BURNER.

No. 545,917. Patented Sept. 10, 1895.

Fig. 1.

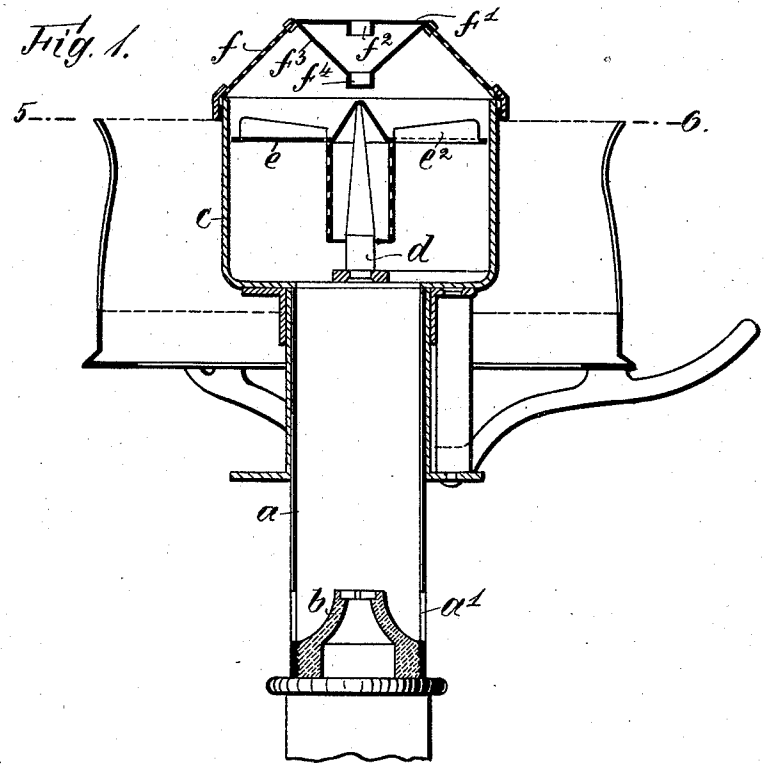
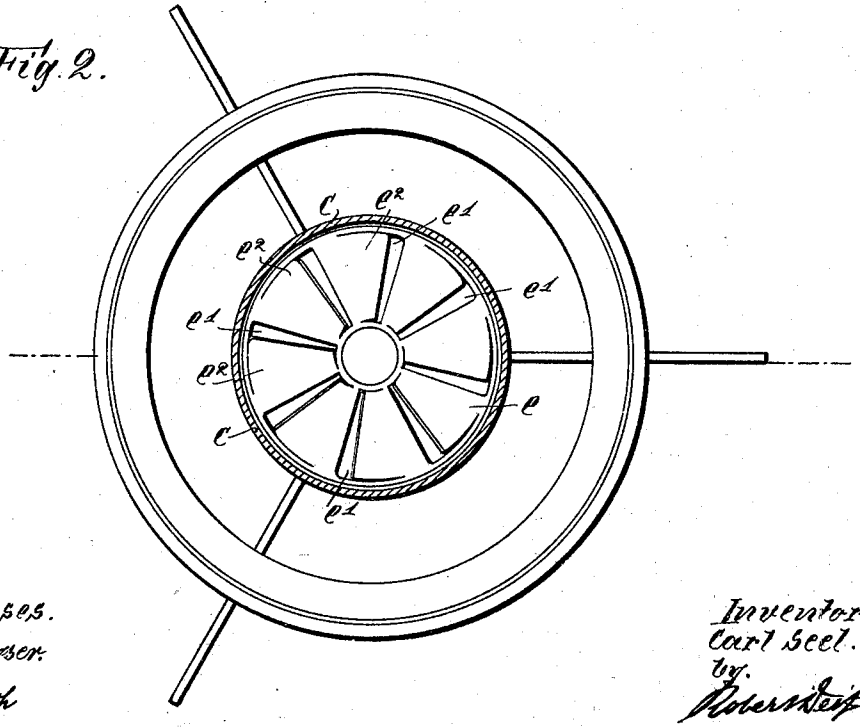


Fig. 2.



Witnesses.
Emil Kayser.
Carl Rossbach

Inventor.
Carl Seel.
by
Roberts & Co
Attorney.

(No Model.) 2 Sheets—Sheet 2.

C. SEEL.

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Fig. 3.

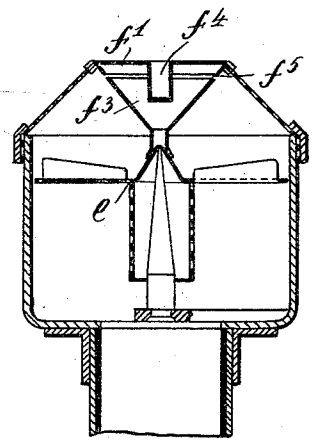
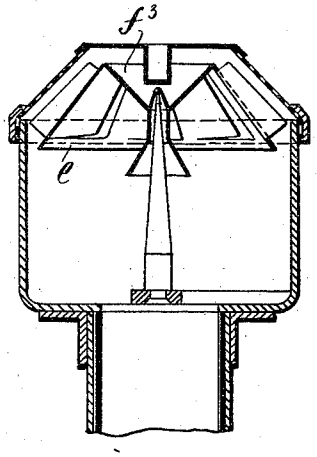


Fig. 5.



Witnesses.
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Carl Rossbach

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by
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Attorney.

UNITED STATES PATENT OFFICE.

CARL SEEL, OF BERLIN, GERMANY.

BUNSEN BURNER.

SPECIFICATION forming part of Letters Patent No. 545,917, dated September 10, 1895.

Application filed February 6, 1895. Serial No. 537,549. (No model.)

To all whom it may concern:

Be it known that I, CARL SEEL, a subject of the King of Prussia, German Emperor, and a resident of Berlin, in the Kingdom of Prussia, German Empire, have invented an Improved Bunsen Burner, of which the following is an exact specification.

This invention refers to burners in which a mixture of air and gas is used for producing a non-luminous flame of great heat; and my improvement in burners of said kind relate to the combination of the same with a mixing-wheel arranged between the air and gas tube and the burner proper or directly below said burner proper, respectively. Said mixing-wheel is provided with wings similar to those of a ventilator, so as to enable the said wheel to be rotated by the buoyancy of the gas or by the pressure of the same, respectively.

The purpose of my invention is to obtain a very thorough mixing of the gas and air, and, further, to produce a longer, more cylindrical, and more uniform flame by causing the finished mixture to rotate under the reacting influence of the said mixing-wheel.

My improved Bunsen burner may be employed for heating purposes, as well as for lighting purposes—*i. e.*, for the so-called "gas-glow light"—and is, in fact, intended especially for the latter.

In order to make my invention more clear, I refer to the accompanying drawings, in which similar letters denote similar parts throughout the different views, and in which—

Figure 1 is a vertical section through the burner. Fig. 2 is a horizontal section taken on line 5 6 of Fig. 1. Fig. 3 is a vertical section through a modification, and Fig. 4 is a vertical section through another modification.

The air-tube *a*, which is provided with the perforations *a'*, is fixed to the gas-nozzle *b*, and carries at its top the casing *c*. The latter contains centrally a pivot *d*, upon which is arranged the mixing-wheel *e*. This wheel is provided with a number of radial cut-outs *e'*, and on its upper surface with a corresponding number of inclined wings e^2. The gas and air, on its way from the tube *a* to the truncated burner proper *f*, pushes upon said inclined wings e^2 and causes, thus, the wheel *e* to rotate upon the pivot *d*. Owing to the resistance of the wings e^2 on one part and to the rotation of the wheel *e* on the other part, the gas and air are thoroughly mixed, and this finished mixture will by the reacting influence of the wheel *e* be caused to circulate within the upper part of the casing *c*—*i. e.*, between the wheel *e* and the truncated burner proper *f*.

The mixture therefore will escape out of the numerous perforations of the burner *f*, not normally to the outer surface of the burner, but rather tangentially, and the flame will thus become a perfectly cylindrical and uniform one, and will moreover be of a comparatively great length. This is of great importance, especially if the improved burner is used for the so-called "gas-glow light," as not only a saving of gas is obtained, but the durability of the incandescence body is greatly increased too.

In order to secure the central vertical rod holding the incandescence body to the aforedescribed burner, I prefer to provide the truncated burner proper *f* in its flat top portion *f'* with an opening f^2, and I then attach to the lower side of said flat portion *f'* a funnel-shaped piece f^3, having at its lower end a small box f^4. The aforementioned supporting-rod (not shown) of the incandescence body is passed through the opening f^2 into the box f^4, and is thus securely held, as is clear without further explanation. The function of the cone f^3 is a double one, in that it not only holds the box f^4, but also deflects the finished mixture of gas and air to the perforated burner-plate *f*. In order to prevent any decrease in the rotary velocity of the mixture, I prefer to let a part of said cone f^3 rotate together with the mixing-wheel *e*. I have shown this mode of construction in Fig. 3, in which said cone has been divided at f^5 in two parts, the small upper part being fixed to the top plate *f'* of the burner, and the large lower part to the central portion of the wheel *e*. The box f^4 is in this case elongated and secured directly to the said top plate *f'*. Instead of employing a flat mixing-wheel, as in Figs. 1 and 3, I may use a conical one, and combine the same directly with the movable cone f^3, as shown in Fig. 4, from which the construction is clearly to be comprehended without further explanation.

Having thus fully described the nature of

this invention, what I desire to secure by Letters Patent of the United States is—

1. In a Bunsen burner, the combination with the tube leading the gas and air to the burner proper, of a mixing wheel arranged below the latter, and adapted to be rotated by the gas and air; said burner proper having in its center an inverted cone extending downward and adapted to deflect the mixture of gas and air to the other portions of said burner, for the purpose as described.

2. In a Bunsen burner, the combination with the tube leading the gas and air to the burner proper, of a mixing-wheel arranged below the latter, and adapted to be rotated by the gas and air; said mixing wheel having in its center an inverted cone extending upward and adapted to deflect the mixture of gas and air to the side-portions of said burner, for the purpose as described.

3. In a Bunsen burner, the combination with the tube leading the gas and air to the burner proper, of a mixing-wheel arranged below the latter, and adapted to be rotated by the gas and air; said mixing-wheel being formed by a hollow truncated cone secured to an inverted cone adapted to rotate upon a pointed pivot, for the purpose as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CARL SEEL.

Witnesses:
WM. HAUPT,
CHAS. KREIGER.