J. BRONNER.

Gas Burner.

No. 84,675. Patented Dec. 8, 1868.

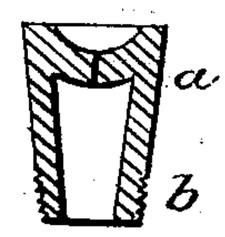

Fig. 1.

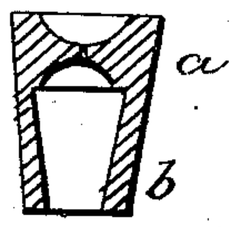

Fig. 2.

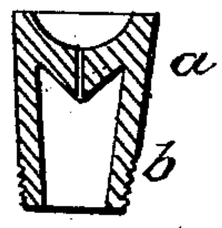

Fig. 3.

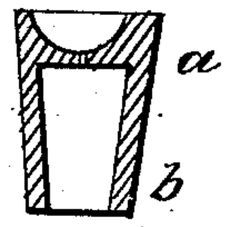

Fig. 4.

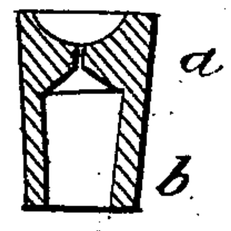

Fig. 5.

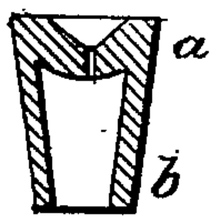

Fig. 6

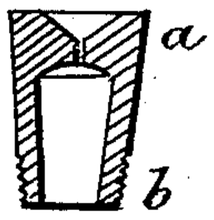

Fig. 7.

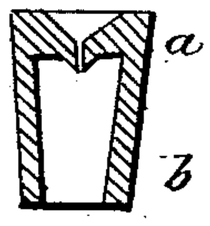

Fig 8

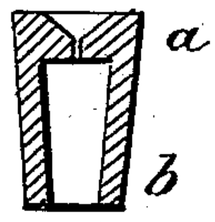

Fig. 9.

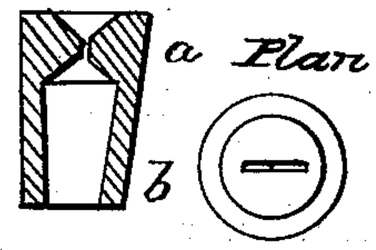

Fig. 10. Fig 11.

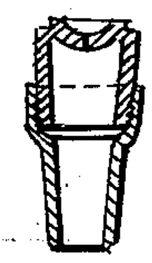
Fig. 12.

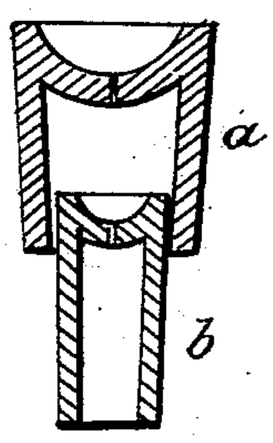

Fig. 1.

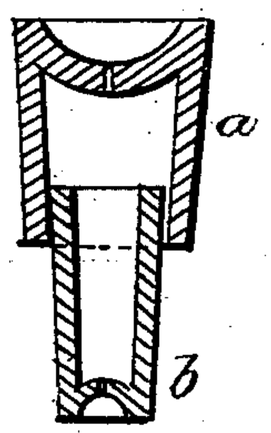

Fig. 2.

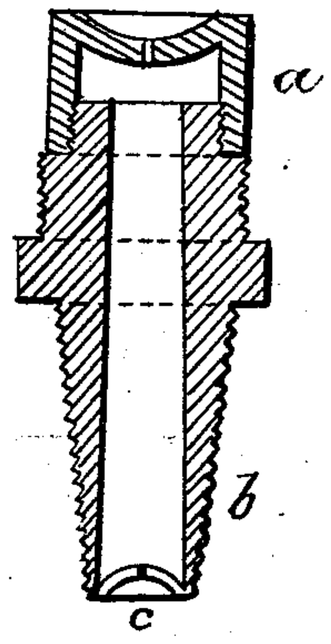

Fig. 3.

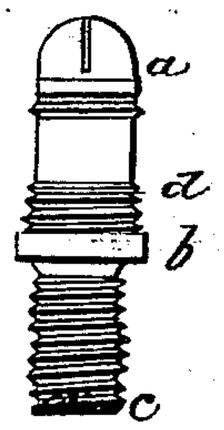

Fig. 4.

Witnesses

Valentin Kirlok

Georg Link

Inventor

Julius Brönner

United States Patent Office.

JULIUS BRÖNNER, OF FRANKFORT ON THE MAINE, PRUSSIA.

Letters Patent No. 84,675, *dated December* 8, 1868.

IMPROVEMENT IN GAS-BURNERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JULIUS BRÖNNER, of Frankfort on the Maine, in the Kingdom of Prussia, manufacturer, have invented "Improvements in the Construction of Gas-Burners;" and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists, partly, in providing for the more profitable consumption of gas, and partly in the prevention of faults appertaining both to ordinary gas-burners and to those previously invented by myself.

I will now proceed to describe the construction, advantages, and utility of my improvements, in their application to simple burners, and also to compound economic burners, otherwise double burners.

I construct the upper part of the gas-burner, in other words, the burner-head, in which is the opening for the jet or flame, so that the outside is concave or funnel-shaped, whilst the inside may be convex, concave, conical, funnel-shaped, or flat.

In this upper part of the burner, I make a slit, the length and breadth of which are regulated by the consumption which is to be given to the burner. The effect of this is that the gas flows from both ends of this slit towards the middle. Both streams, consequently, meet in the centre, and flatten, thereby producing a flame standing at right angle to the slit, contrary to the effect produced in the slit-burners hitherto used, in which the gas, flowing out in every direction given to the slit, forms a flame, burning in the shape of such slit.

The effect above described is obtained by the application of a slit in the hollowed or sunken burner-head; and whether the chamber or body be made more or less deep, or whether the slit be of greater or lesser depth, with either horizontal or vertical sides, is of no special importance; neither does the material of which the burner is made, in any way influence the result, and the whole effect produced by such modifications consists in inappreciable disfigurations of the flame, which will become more pointed, broader, more regular, or more irregular.

I, therefore, expressly reserve to myself all these variations in the construction, as well as the choice of the material, be it "Speckstein" clay, or steatite, porcelain, brass, iron, or any other substance. The burners illustrated on the drawing are colored, to represent steatite, or a combination of steatite and brass.

The utility of this construction is, that while avoiding the faults of the ordinary two-hole fish-tail, and of the slit bat's-wing burner, it unites all their advantages, namely:

First, this new fish-tail-slit burner produces the beautiful jet or flame of the hole-burner, whilst the long points of the ordinary slit-burner jets disappear; consequently, it becomes possible to make use of a glass globe or other apparatus, for protecting the flame.

Second, it prevents the hissing or singing of the flame, which takes place in hole-burners, under increasing pressure.

Third, it resembles ordinary slit-burners, in not being exposed to the choking of the burning-aperture by the impurities of the gas, as is the case with hole-burners.

The application of this new construction to single (not compound) burners explains itself. In compound ones, (double or economic burners,) it is applied by employing the single fish-tail-slit burner as under-burner; by using a large fish-tail-slit burner as head; or by setting the head of a fish-tail-slit burner on or in the body of the economic burner

Description of the Drawing.

Part I illustrates single fish-tail-slit burners, made according to my invention.

a (figs. 1 to 10) indicates the upper part, in other words, the head of the burner, through which the gas flows out to be consumed.

b, the hollow body or shell of the burner.

In figs. 1 to 10, *b* is always the same. The length and breadth of this body vary at pleasure, and according to the diameter of the gas-pipe. The outer form is, of course, of no importance.

a, however, varies in all the figures.

I give the preference to the shape shown, fig. 1, but I, however, likewise reserve to myself the exclusive right of manufacturing the other constructions.

In Figure 1, *a* is, on the outside, concave; on the inside, convex;

In Figure 2, *a* is, on the outside, concave; on the inside, concave;

In Figure 3, *a* is, on the outside, concave; on the inside, conical;

In Figure 4, *a* is, on the outside, concave; on the inside, flat;

In Figure 5, *a* is, on the outside, concave; on the inside, funnel-shaped;

In Figure 6, *a* is, on the outside, funnel-shaped; and inside, convex;

In Figure 7, *a* is, on the outside, funnel-shaped; and inside, concave;

In Figure 8, *a* is, on the outside, funnel-shaped; and inside, conical;

In Figure 9, *a* is, on the outside, funnel-shaped; and inside, flat; and,

In Figure 10, *a* is, on the outside, funnel-shaped; and inside, also funnel-shaped.

Figure 11 is a plan view of a burner, made according to my invention, and

Figure 12, a section of one of my improved burners, made partly of steatite and partly of brass.

All these figures are drawn somewhat exceeding ordinary size, with the exception of fig. 12, which is drawn usual size; and some of the burners are shown screw-threaded, for fixing in the gas-pipe, whilst others are plain, for luting in, as may be preferred.

Part II shows the application of my fish-tail-slit burner as double burner, as insertion, and as head to such, respectively; for instance, to the burner hitherto known as "Brönner's."

Figure 1 is a double burner, consisting of a fish-tail-slit burner, *b*, upon which a second fish-tail-slit burner, *a*, of larger dimensions, is fitted, being luted or screwed together, as may be preferred; and this also applies to Figure 2, which is one of the same description, with the exception that the burner *b* is fitted upside down in the burner *a*.

Figure 3 shows the application of my fish-tail-slit burner to a "Brönner's" burner. *a* is a large fish-tail-slit burner, as head; *b* is the actual body of the burner; and *c*, the head of a fish-tail-slit burner, employed as insertion in the under part of a "Brönner's" burner. I reserve to myself the putting of this inserted piece on the top, at the bottom, or in the middle, and to place the concave side upward or downward.

The sections, figs. 1, 2, and 3, are drawn somewhat exceeding ordinary size.

Figure 4 shows, in elevation, and drawn to ordinary size, another application of a fish-tail-slit insertion to a "Brönner's" double burner. *c* is the small fish-tail-slit insertion, by which the gas enters into the burner; *b* is the body of the burner; *a*, an ordinary burner-head, by which the gas issues, and in lieu of which may be substituted a fish-tail-slit burner, as at fig. 3, if desired; *d* is a screw-thread, for screwing on to the burner itself, the triangle supporting the globe, which is, consequently, always in proper juxtaposition to the flame.

The advantage of the fish-tail-slit insertion is that the double burner, to which it is applied, will never be choked by the impurities of badly-purified gas, as happens in double burners of other construction.

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

1. The use of a slit, as aperture to a gas-burner, the top exterior surface of the head of which is concave or funnel-shaped, substantially as and for the purposes set forth.

2. The combination of two gas-burners thus made, in other words, of two fish-tail-slit burners, to form a compound economic or double burner, or of one such fish-tail-slit burner, with an ordinary burner, substantially as described.

3. The use of the fish-tail-slit burner-head or insertion *c*, constructed and applied substantially as herein set forth.

JULIUS BRÖNNER.

Witnesses:

VALENTIN KESTELL,
Kleine Sandgasse, No. 6,
Frankfort on the Maine.

GEORG LINK,
54 *Mainzer Landstrasse,*
Frankfort on the Maine.