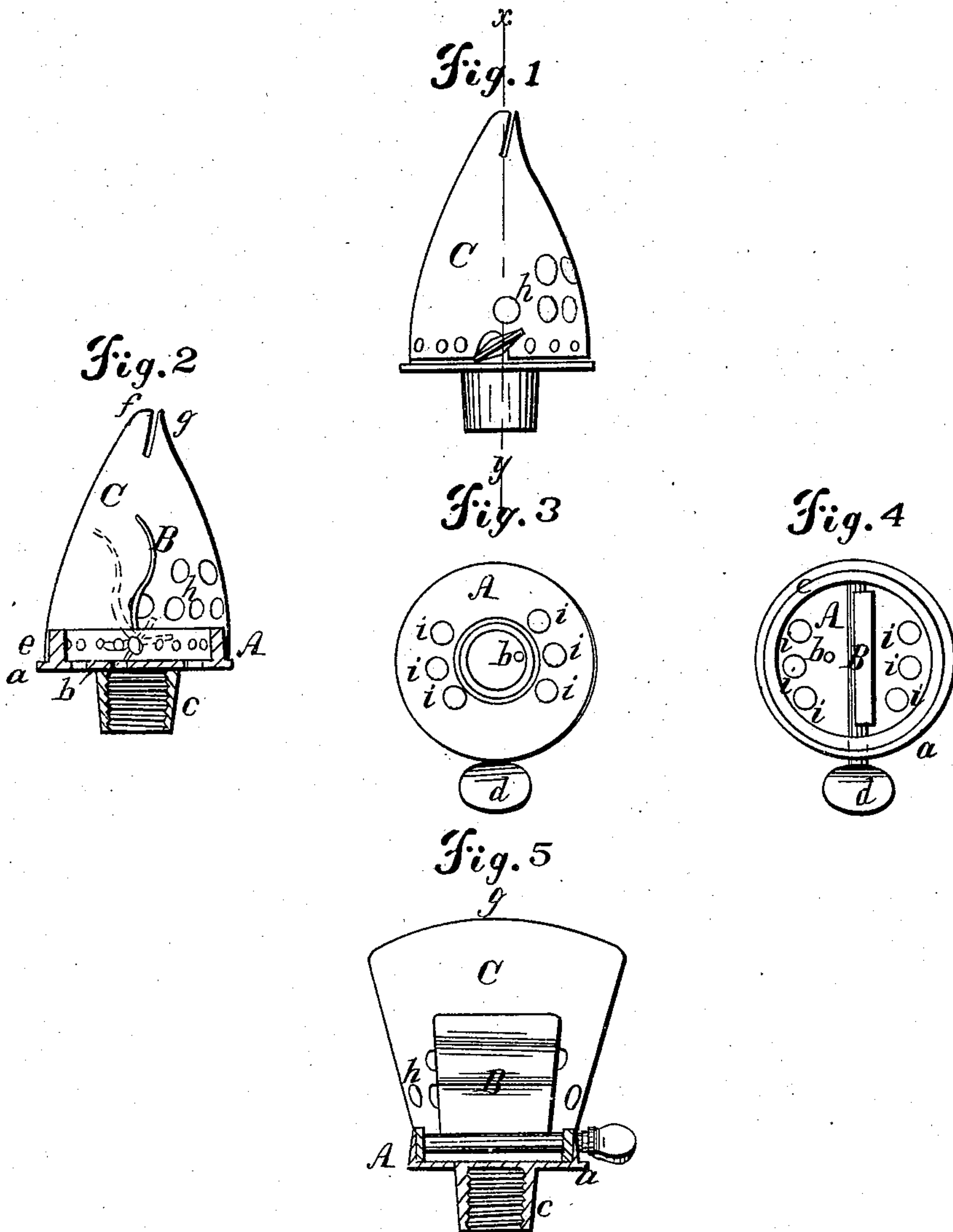


S. D. BALDWIN.

Vapor Burner.

No. 89,271.

Patented April 27, 1869.



Witnesses;
E. B. Sherman
E. A. West.

Inventor:
S. D. Baldwin

United States Patent Office.

SILAS D. BALDWIN, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF
AND DANIEL LEONARD, OF SAME PLACE.

Letters Patent No. 89,271, dated April 27, 1869.

IMPROVEMENT IN VAPOR-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, SILAS D. BALDWIN, of the city of Chicago, in the State of Illinois, have invented certain new and useful Improvements in Hydrocarbon-Vapor Burners; and I do declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side view or elevation.

Figure 2, a similar view in section.

Figure 3, a bottom view.

Figure 4, a top view.

Figure 5, a section on red line *x y*.

My invention relates to that class of burners used in burning gases formed from volatile fluids, and is especially designed to be used in burning gasoline; and

The nature of the invention will be fully understood from the description of the burner and its operation, which follows.

The several parts are made of any suitable metal. I use brass for all but the cap C, which I usually make of copper.

A represents a disk of metal about one and a quarter inch in diameter.

e is a vertical flange, extending upwards from the disk, designed to receive the cap C, which rests upon the narrow lateral flange *a*.

The flange *e* is perforated, as shown, for the admission of air, and the disk itself is perforated, as shown, for the same purpose.

By means of the tube *c*, which extends downwards from the disk, and is provided with a screw-thread, as shown, the burner is secured to a short tube about three inches long, which tube is to be connected with the pipe leading to the gasoline reservoir in the ordinary manner, and the flow of gasoline can be regulated by a stop-cock as usual.

This disk A, with the flanges *a* and *e*, and the connecting-piece *c*, are cast in a single piece.

In the disk is a small perforation, *b*, opening into *c* through which the gas passes into the open space above the disk and within the cap C.

This perforation *b* is a little to one side from the centre, and under and to the left of the deflector B.

B is a deflector, against which the current of gas strikes, causing it to be diffused and mingled with the air within the cap C, and also causing the gas to be thrown against the hot sides of the cap C.

This deflector is attached to a shaft, *k*, passing through the flange *e* on each side, and provided with a thumb-piece, *d*, so that the deflector can be adjusted at any desired angle. The position indicated by the red lines, fig. 2, is about the position in which it should usually be placed.

C is a cap, having the form shown, and fitting closely over the flange *e*.

It is flattened at the top and the gas escapes through a long and narrow slit or opening between the two lips *f g*.

These lips are not similar in form. *f* is curved and bent over towards *g*, as shown, but the lip *g* is straight, and its edge should be even with or a trifle above that of *f*.

Near the lower edge, or bottom, of this cap is a series of openings corresponding with those in the flange *e*, for the admission of air, and there are also other perforations, *h*, placed, as shown, in the cap.

By making the disk A more open than shown, the perforations *h* may be omitted.

This cap C serves a double purpose. It forms a chamber within which the gas is heated and mingled with the air before reaching the opening between the lips *g f*, where it is burned, and it serves as a heater to convey heat to the tube below to vaporize the fluid, and it is not necessary to place additional heaters either within or at the side of the flame.

In use the gas is first formed by heating the burner and tube below, as usual. It then passes with considerable force into the chamber within the cap C, and if permitted to pass directly to the outlet, the proper and complete combustion of the gas would not take place, but striking against the deflector B, its upward course is checked, and it must mingle with the inflowing air passing through the perforations in that side of the disk; and being so mingled, a portion passes over the upper edge of the deflector and against the side of the cap, while other portions pass around and over the other edges of the deflector, and are further mingled with the air entering the other side of the chamber.

That portion which passes up and to the lip *f* is again deflected by the curved lip *f*, and its tendency is to pass across the opening between the lips and strike against the lip *g*, but at the opening it is met by the current ascending from the opposite side of the chamber, and the two currents intermingle at the opening.

The gas and air thus pass through the hot chamber C, large at the base and long and narrow at the top, and come to the outlet so heated and intermingled as to insure perfect combustion.

When the several parts have become heated, there will be a constant flow of gas formed in the usual manner.

The drawings are full size.

To secure a broader flame than can be obtained by a single burner, as shown, a short piece of tube may be used instead of the disk A, the same being connected with the tube passing to the reservoir, and at right angles therewith, and in such tube two or more

orifices for the escape of gas may be made. A flange may be provided for the cap, which must be elongated and made to enclose all the openings for the outflow of gas, and a single deflector can be used extending the whole length of the cap.

Having thus fully described my invention,

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. The deflector B, constructed substantially as and for the purposes specified.

2. The disk A, in combination with the cap C, and deflector B, all constructed and operating substantially as and for the purposes specified.

3. The cap C, constructed substantially as specified.

S. D. BALDWIN.

Witnesses:

E. B. SHERMAN,

E. A. WEST.