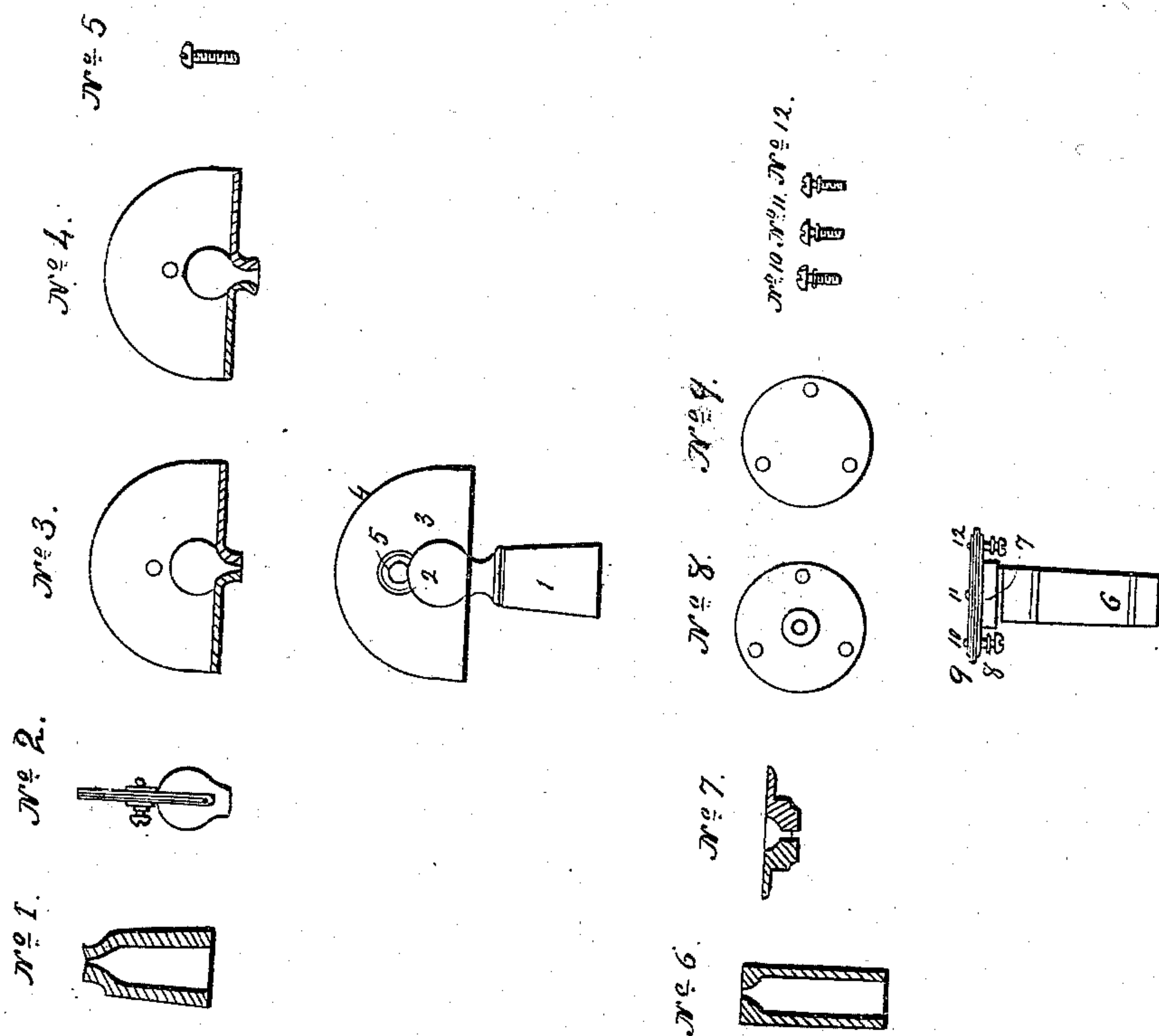


J. S. FANCHER.

Gas Burner.

No. 39,725.

Patented Sept. 1, 1863.



Witnesses:

Thos. Agnew
John Post

Inventor:

J. S. Fancher

UNITED STATES PATENT OFFICE.

JONATHAN S. FANCHER, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN GAS-BURNERS.

Specification forming part of Letters Patent No. **39,725**, dated September 1, 1863; antedated October 11, 1862.

To all whom it may concern:

Be it known that I, JONATHAN S. FANCHER, of the city of Newark, county of Essex, and State of New Jersey, have invented an Improvement to Gas-Burners, which is a new and improved mode of expanding burning gas as it issues in a jet from the orifice of the common gas-burners, or from any orifice through which the gas is emitted, before it can come in contact with the atmosphere, so that ignition can be produced therefrom; 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 figures of reference marked thereon.

The nature of my invention consists in expanding the gas as it issues from the common gas-burner or any orifice through which the gas is emitted into a sheet between two fans or planes, situated so near together that the gas may escape between them at all points of the perimeter and still not let the flame enter, and in this mode so expanding any given quantity or jet of gas that when it issues from the perimeter it shall be expanded so as to unite with the oxygen of the atmosphere in the exact proportions to have it all consumed in flame when ignited, and thus produce the greatest possible light from any given jet, the size of the fans or planes depending upon the size of the jet of gas.

To enable others to make and use my invention, I will proceed to describe its construction and operation.

I construct my improved gas-expanding burner from any material, such as iron, steel, copper, platinum, or any metal or alloy or other material that will not fuse by the heat which is produced by the burning. The article consists of a tube or socket, (represented by Fig. 1 of the drawings,) which can be slipped on the common gas-burner or screwed on over the orifice from which the jet of gas issues or over any orifice through which the gas is emitted without the use of the common gas-burner at all. The upper end of the tube or socket opens into a small chamber or bulb, represented by Fig. 2 in the drawings. This chamber or bulb is divided through the center down to the end of the tube or socket before mentioned, to which it is fastened or made

a part, so that the gas can escape at all points where it is divided. To each side or lip of the bulb thus divided, and in a plane with the division thus made, is a fan or plane attached, which are represented in the drawings by Figs. 3 and 4, and these fans or planes are to be as near parallel as may be to each other, and so near each other as to exclude flame from entering between them and still sufficiently apart to let the gas escape at all points of the perimeter where it comes in contact with the oxygen of the atmosphere and is ignited. The whole may be made of one piece of metal, or it may be made in parts and screwed or fastened together.

Fig. 5 represents in the drawings a screw passing through the fans or planes to regulate the thickness of the sheet of gas, and also for opening the fans for the purpose of cleaning the burner, or the planes may be whole circles or polygons, as represented by the other device in the drawings Nos. 8 and 9. The gas passing from the orifice or chamber through the center of one plane, No. 8, the other plate, No. 9, is held parallel to it by means of three screws, (represented in the drawings by Figs. 10, 11, and 12,) and by them adjusting the flame and light, and also by them the plane No. 9 can be removed for the purpose of cleaning the burner.

The two devices only represent the application of the one principle in different forms of expanding the gas so that it may combine with the oxygen of the atmosphere in the right proportion to have it all consumed. The gas, being a carbonic oxide, must unite with the oxygen of the atmosphere in order to ignite and produce flame.

By my invention the gas, after passing the orifice in a jet where it has formerly come in contact with the atmosphere, (necessarily in undue proportions to produce the greatest amount of flame from a given jet and is ignited,) by my invention is made to pass into the chamber or bulb; or it may be constructed without any chamber or bulb, and then by the fans or planes caused to expand to any extent desirable, so that the amount of oxygen in the atmosphere may be in the right proportion to unite with and consume all the gas at the perimeter or place of ignition.

By my invention we get as much light from a jet that passes two or three feet an hour as from a jet that passes six or eight feet an hour without it, thus saving half or two-thirds of the gas with an equal amount of light.

Heretofore the gas has been thrown into the atmosphere in jets, and consequently could not all unite so as to be consumed by the burning; but by my invention any given jet of gas may be expanded to any desirable extent, according to the size of the planes. The size of the planes or fans will depend on the size of the jet of gas to be expanded, so that all the gas may be consumed and the greatest possible light produced by the application of this principle.

To all other gas-burners, where the gas is thrown directly into the atmosphere in a jet or through a chamber or bulb and then ignited, I make no claim.

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

1. The expanding of the gas as it issues from other gas-burners, or from any orifice through

which the gas is emitted, before it comes in contact with the atmosphere, so as to be ignited by means of two fans or planes. (Represented in my drawings by Figs. 3 and 4.) These planes may be of any shape or form.

2. The application of the principle of regulating the flame by means of the screw represented in the drawings by Fig. 5, with which the fans or planes are separated or brought together, thus adjusting the light as may be desired, and also the use of the screw for opening the fans for the purpose of cleaning the burner.

3. The application of the same principle I exhibit by the other device represented in the drawings by Fig. 6, the socket; by Fig. 7, the chamber; by Figs. 8 and 9, the two planes; by Figs. 10, 11, and 12, the three screws by which to adjust the planes, or to separate them for the purpose of cleaning the burner.

J. S. FANCHER.

Witnesses:

THOS. AGENS,
JOHN POST.