

(No Model.)

J. S. WETHERED.

GAS BURNER.

No. 353,187.

Patented Nov. 23, 1886.

Fig. 3.

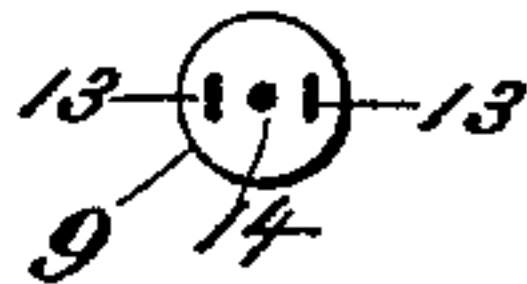


Fig. 1.

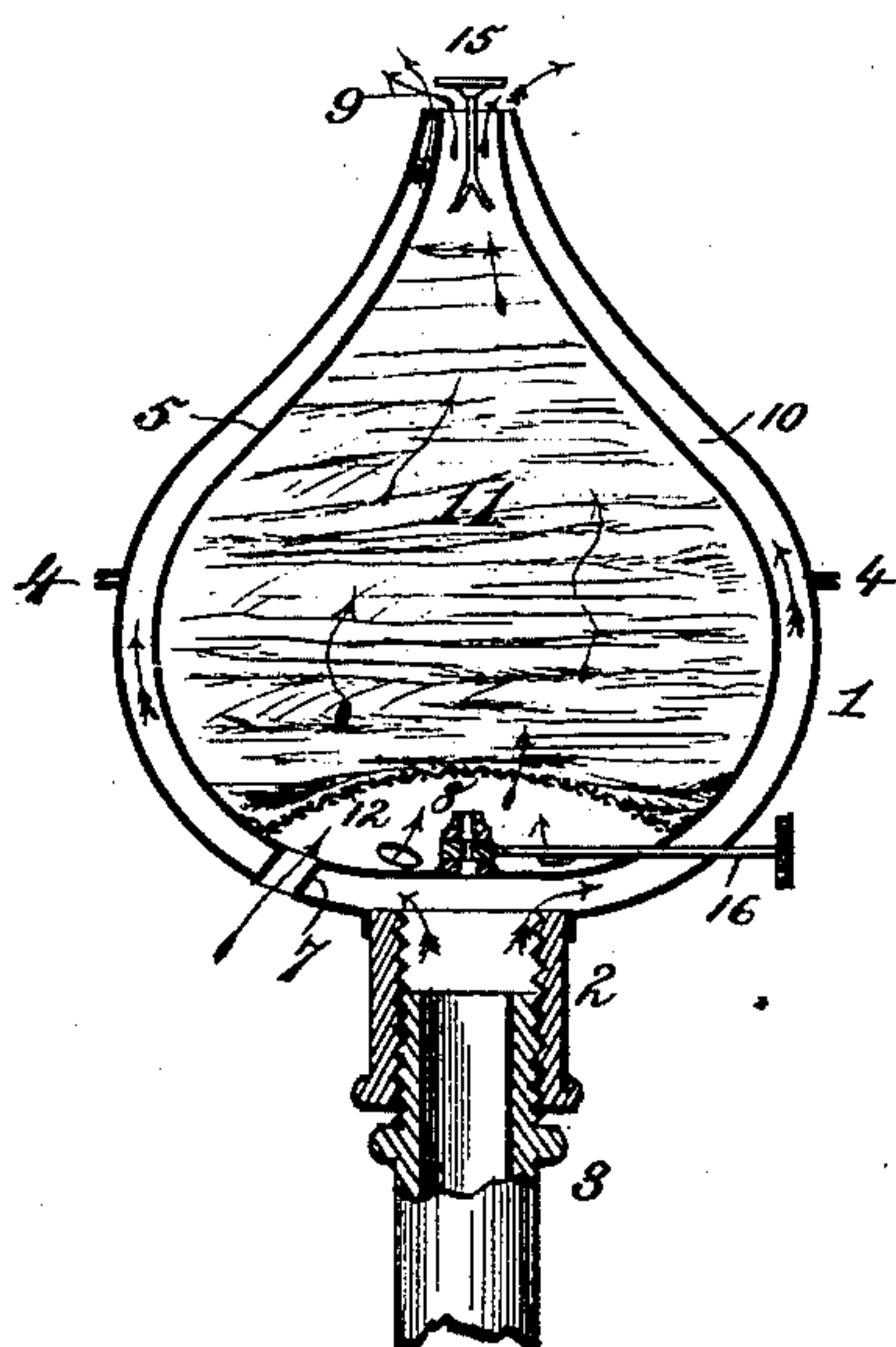


Fig. 4.

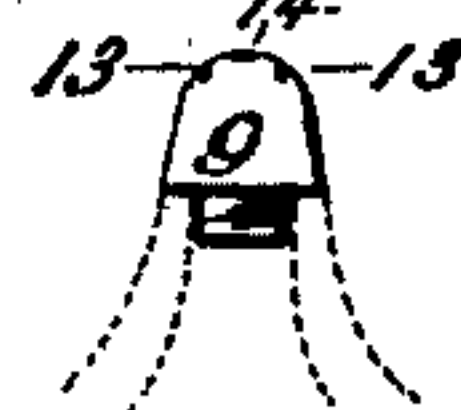
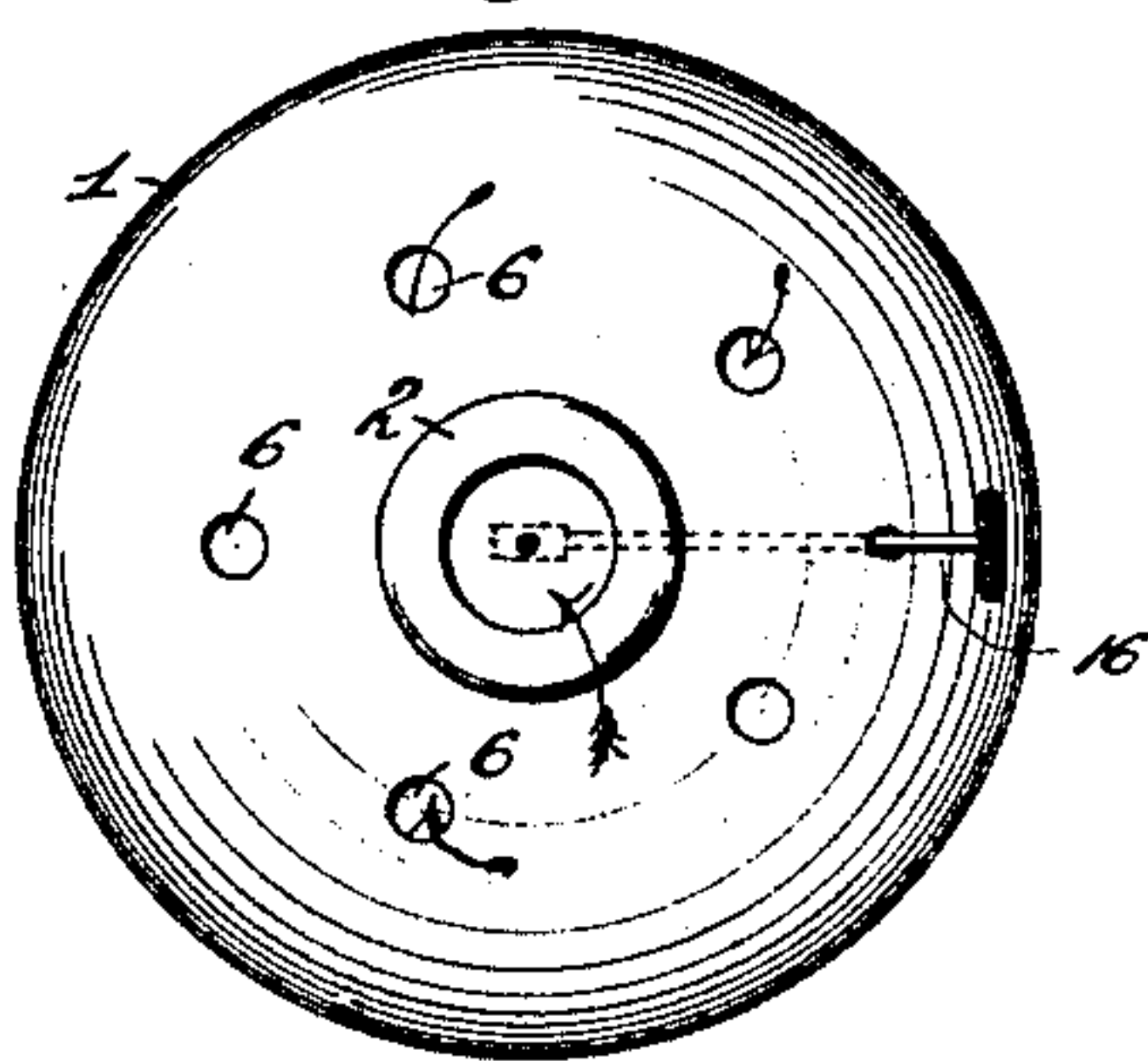


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

JAMES S. WETHERED, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO ISAAC D. GUYER, OF CHICAGO, ILLINOIS.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 353,187, dated November 23, 1886.

Application filed December 17, 1885. Serial No. 185,975. (No model.)

To all whom it may concern:

Be it known that I, JAMES S. WETHERED, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Gas-Burners, of which the following is a specification.

My invention relates to an improved gas-burner, comprising an outer shell or gas-passage, an inner shell or air-passage having air-inlets extending through the gas-passage, said shells being converged at the top to form a burner tip or tips, an auxiliary gas jet or nipple at the base of the inner shell, and an incandescent heat-accumulating material or structure inclosed in the inner shell above said auxiliary gas-jet.

The invention also consists in the construction and combination of parts in a gas-burner, as will be hereinafter more fully set forth.

In the annexed drawings, illustrating my invention, Figure 1 is a vertical section of my improved gas burner. Fig. 2 is a bottom view of the same. Figs. 3 and 4 represent a burner-tip.

In order to enable those skilled in the art to make and use my improved gas-burner, I will now proceed to describe its construction with reference to the accompanying drawings.

In the drawings, the numeral 1 designates the outer shell or casing of the burner, which may be of any suitable or preferred form, and is made of metal or other appropriate material. At the lower end of the burner-casing 1 is an internally-threaded tubular neck, 2, by which the burner is attached to the nozzle 3 of a gas-supply pipe, as shown in Fig. 1. The burner-shell may be made in one piece, or in two or more parts connected by flanges 4, or otherwise, as may be preferred.

Within the outer shell or casing, 1, is inclosed an inner and smaller shell, 5, the form of which corresponds with that of the outer shell. At the bottom or in the lower part of both shells are perforations 6, connected by tubes 7, through which air is admitted to the interior of the inner shell. In the lower part of the inner shell, 5, and communicating with the tubular neck 2 of the outer shell, is a small gas-jet, 8, by

which the air supplied to the burner is heated before being passed to the burner-tip.

The shells 1 and 5 are so made as to converge at the top to form a burner-tip, 9, and the space 10 between the shells communicates with this tip at one end and with the gas inlet or neck 2 at the other end.

I employ a quantity of loosely-packed asbestos, 11, supported upon a perforated diaphragm or wire-gauze partition, 12, arranged to prevent the asbestos fibers from falling onto the gas jet 8. It will be seen that air entering the inlets 7 will pass through the perforated diaphragm 12 and into and through the mass of heated asbestos. The feed of the air is thus sufficiently retarded to allow ample opportunity for greatly increasing its temperature before it is permitted to reach the burner-tip. By means of the gas jet 8 the burner and its contents are maintained at a high temperature throughout. It is therefore evident that the gas-supply which passes through the space 10 between the burner-shells will also be raised to a high temperature before reaching the burner-tip, where it comes in contact with the heated air. With a sufficient supply of gas an intense combustion can be maintained at the burner-tip, and by the thorough intermixture of heated gas and air the combustible gaseous constituents will be thoroughly consumed.

The burner-tip may be annular to produce a hollow flame, having a central air-supply; or, if desired, the tip may have two or more slits, 13, for exit of gas, with an air-opening, 14, located between. In either case the burner may be provided with a deflecting plate, button, or disk, 15, to direct the air-supply against the inner side of the flame and insure a thorough mixture of air and gas. The gas-jet 8 is provided with a cock, 16, and, if desired, the burner proper, or the pipe or tube to which it is attached, may be furnished with any suitable or well-known regulating device.

When the burner is to be used, the gas is turned on and ignited at the jet or nipple 8, thereby rapidly heating the burner and its contents. The gas and air passed through the burner thus have their temperatures raised

rapidly, and when brought in contact and ignited at the burner-tip will combine with great energy.

5 A burner of this construction can be used to advantage either for heating or illuminating purposes.

A burner of this construction can be readily attached to a chandelier or other support for illuminating purposes, and it is also
10 adapted for use in heating.

What I claim as my invention is—

1. In a gas-burner, the combination of an outer shell or gas-passage, an inner shell or air-passage, air-inlets extended through the
15 gas-passage, an incombustible material inclosed in the inner shell and extending entirely across the space within the same and forming circuitous air-passages, a foraminous plate sus-

taining said material, and an auxiliary gas-jet located beneath said foraminous plate, substantially as specified. 20

2. In a gas-burner, the combination of an outer shell or gas-passage, an inner shell or air-passage, a gas jet or nipple located in the lower part of the inner shell, a perforated
25 transverse diaphragm above said internal gas-jet, and an asbestos filling inclosed in the inner shell and resting on said perforated diaphragm, substantially as described.

In testimony whereof I affix my signature in
30 presence of two witnesses.

JAS. S. WETHERED.

Witnesses:

JOS. L. COOMBS,

J. A. RUTHERFORD.