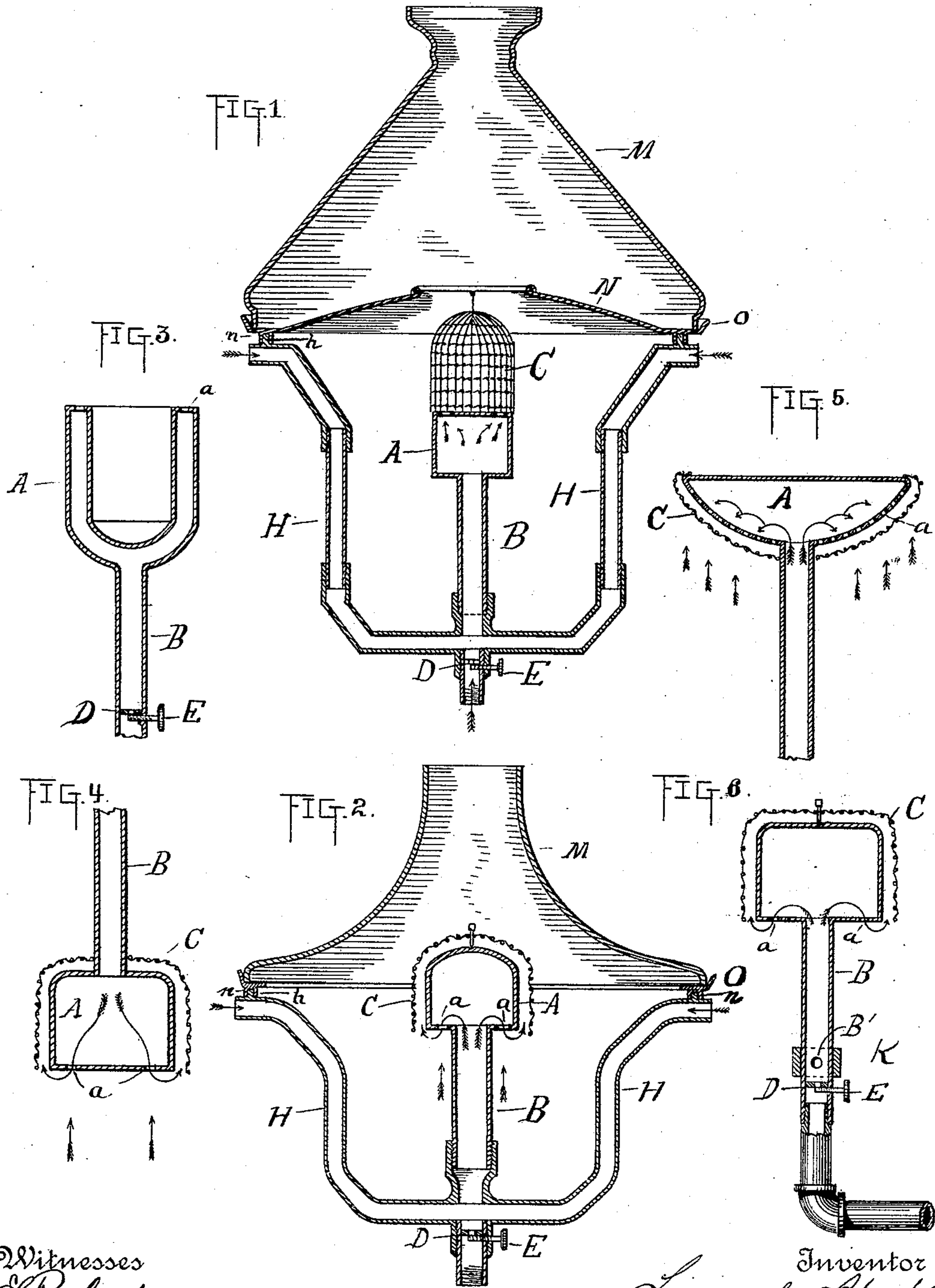


(No Model.)

L. HENKLE.
INCANDESCENT GAS BURNER.

No. 437,649.

Patented Sept. 30, 1890.



Witnesses
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UNITED STATES PATENT OFFICE.

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INCANDESCENT GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 437,649, dated September 30, 1890.

Application filed July 20, 1889. Serial No. 318,136. (No model.)

To all whom it may concern:

Be it known that I, LEONARD HENKLE, a citizen of the United States, and a resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Incandescent Gas-Burners, of which the following is a specification.

This invention involves the use of a finely woven or braided platinum-wire basket, cone, or thimble, in combination with a compound burner for burning gas and air, or in connection with an ordinary burner designed for the combustion of fuel-gas, water-gas, or any other gaseous substance capable of producing a high degree of heat by which the platinum cone or thimble can be maintained at a high degree of incandescence; also, to the construction whereby atmospheric air is mingled with the gas in order to produce more perfect combustion and a higher degree of heat; and it consists of the construction, arrangement, and combination of parts disclosed in the following specification, reference being had to the accompanying drawings, which form a part thereof, and in which similar letters of reference indicate like or equivalent parts wherever found throughout the several views, and in which—

Figure 1 represents a central vertical section of my improved burner; and Figs. 2, 3, 4, 5, and 6 modifications in the construction and adaptation thereof, each being in central vertical section.

Referring to Fig. 1, A indicates the burner, which is preferably cylindrical in form, and B a tube, by which gas or gas and air is admitted thereto, tube B being provided at its lower end with a screw-threaded socket, by means of which the burner may be attached to the ordinary gas-fixture.

As a means of mingling air with the gas the tubes H, which are connected with the tube B and communicate with the gas-passage therein, as shown, are provided. These tubes are extended upward and outward and are provided at their upper outer ends with small projections or lugs *h*, and the reflector N is provided with sockets *n*, which fit the projections *h*, whereby the reflector, which is sup-

ported by the air-tubes H, is retained in place. The reflector N is provided at its outer edge with an upwardly-projecting rim or flange, which serves to retain in place the shade M, which is supported by the reflector N, and which, with this improvement, serves in the place of a chimney. The reflector N is also provided with a central opening directly over the burner, and across this opening is stretched a wire, preferably of platinum, from which is suspended a woven or braided platinum cone, basket, or thimble concentrically with the burner and surrounding the top thereof.

The top of the burner is provided with a circle of small perforations or holes through which the gas escapes as in the ordinary burner, and the number of these perforations may be increased or diminished, as may be found necessary.

The operation is as follows: Gas enters the burner A through tube B, and air enters said tube and is mingled with the gas therein through the tubes H in the desired amount. The mingled gas and air is ignited as it escapes through the small perforations in the top of the burner. The mingling of the gas and air before ignition, produces, as in the ordinary Bunsen burner, almost perfect combustion, and the additional supply of air to the gas as the same escapes from the burner adds materially to this effect. The result is a very high degree of heat with but little if any visible flame. The platinum cone or thimble is at once raised to a high degree of incandescence and remains in a highly-luminous condition as long as the burner is ignited.

By means of the perforated diaphragm D and the screw E the amount of gas admitted to the burner may be regulated to any desired amount, and a similar regulating device, or one like that shown in Fig. 6, may be applied to the air-tubes H, whereby the amount of air mingled with the gas may also be regulated. If an air-regulator like that shown in Fig. 6 be employed, the outer ends of the tubes must be closed.

The construction shown in Fig. 2 is similar to that in Fig. 1, with the exception that the

reflector N is omitted and a ring provided with a flange O and sockets *n* is substituted as a support for the shade M, which in this case is shaped somewhat differently from that shown in Fig. 1, in order to secure a draft when the reflector, with its central opening, is not employed. The burner in this figure is also provided with perforations for the escape of the gas in its lower side instead of in its top, as in Fig. 1, and the platinum cone or basket is supported from the top of the burner and extends down around the same. The gas or gas and air escapes from the burner through the perforations in its lower side, as shown by the arrows therein, and is met when ignited by an ascending current of air, as shown by the ascending arrows, and the flame is directed upward around the burner and between the same and the platinum cone, and the latter is at once raised to a high degree of incandescence, as in Fig. 1. It is evident that the reflector N may be used in connection with this form of construction, if necessary or desired. This construction is simpler and more economical than that shown in Fig. 1, and in many respects is preferable thereto.

In Fig. 3 is shown an ordinary Argand burner, which may be readily substituted for that shown in Fig. 1, and Fig. 5 represents a burner which may be employed in place of that shown in Fig. 2. This burner is different in form, being much broader in cross-section, and the bottom is convex and provided over its entire surface with numerous small perforations. The platinum cone is inverted and placed in position by sliding the same over the tube B, a central opening in the cone being provided for this purpose, and is retained in place by bending the upper edge over the burner, or in any other desired manner. The operation is substantially the same as with the construction shown in Fig. 2; but, owing to the increased dimensions of the perforated under surface of the burner, and the fact that the entire extent of the platinum cone is exposed directly to the burning gases, and the light directed almost entirely laterally and downwardly, this form of construction is frequently preferable to either of those hereinbefore described.

The air-tubes H are not absolutely essential to the operation of this improved burner, and in Fig. 6 is shown a form of construction in which these tubes are omitted, air being admitted to the gas-passage by means of holes or openings B', the amount of air entering being regulated by a band K, provided with holes, which may be made to register with those in the tube B, the admission of air being regulated by turning the band. In using this form of construction, however, it will be necessary to provide a chimney or globe in order to secure a draft.

It is evident that this burner may be inverted, if desired, and Fig. 4 represents a burner in this position. The application of the air-

tubes H or air-admitting construction shown in Fig. 6 to this inverted burner will readily suggest itself to any one skilled in this art.

This invention is not limited to the use of platinum wire as a substance from which the cone or thimble H is made, as any substances known and used for such purposes may be substituted, nor is the invention limited to the manner of forming the cone or thimble or supporting the same. It is also evident that the construction of the air-tubes H may be modified and many other changes made in the formation of the various parts of the burner without departing from the scope of this invention.

Having fully described the invention, its construction, and application, I claim and desire to secure by Letters Patent the following:

1. The combination, with a burner, of a tube for supplying gas thereto and supporting the same, air-tubes communicating with the gas-supply tube and supported thereby, and a shade supported by said air-tubes, substantially as shown and described.

2. The combination of a gas-burner, a tube for supplying gas thereto and supporting the same, air-tubes communicating with said gas-supply tube, supported thereby, extending upward and outward, as shown and described, and a reflector supported by the said air-tubes, substantially as and for the purpose set forth.

3. The combination, with a gas-burner, of a tube for supplying gas thereto, air-supply tubes communicating with the gas-supply tube and supported thereby, a platinum cone or thimble supported by the burner, a reflector having a central opening over the cone or thimble, and a shade, also having a central opening, the reflector and shade being supported by the air-tubes, substantially as shown and described.

4. The combination of a gas-burner, a tube for supplying gas thereto, air-tubes communicating with said gas-tube and supported thereby and extending upward and outward, a reflector provided with a central opening supported by said air-tubes, and a shade provided with a central opening over said reflector and supported thereon, substantially as shown and described.

5. The combination, with a gas-burner, of a tube for supplying gas thereto, air-tubes communicating with said gas-tube and supported thereby, a reflector supported by the air-tubes, a platinum cone or thimble suspended over the burner, and a shade provided with a central opening, also supported by the air-tubes, substantially as shown and described.

6. The combination, with a gas-burner consisting of a hollow chamber, the lower side of which is perforated, of a gas-supply communicating with the burner, air-tubes communicating with the gas-supply and supported thereby, a platinum cone or thimble inclosing the burner, and a shade having a central

perforation, supported by the air-tubes, substantially as shown and described.

7. The combination, with a gas-burner having a gas-supply tube and having perforations
5 in its lower side for the escape of the gas, of air-tubes communicating with the gas-supply tube and supported thereby, a platinum cone or thimble surrounding the perforations in the burner and supported thereby, and a shade
10 provided with a central opening, supported

above the burner by the air-tubes, substantially as shown and described.

Signed at Rochester, in the county of Monroe and State of New York, this 17th day of July, A. D. 1889.

LEONARD HENKLE.

Witnesses:

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