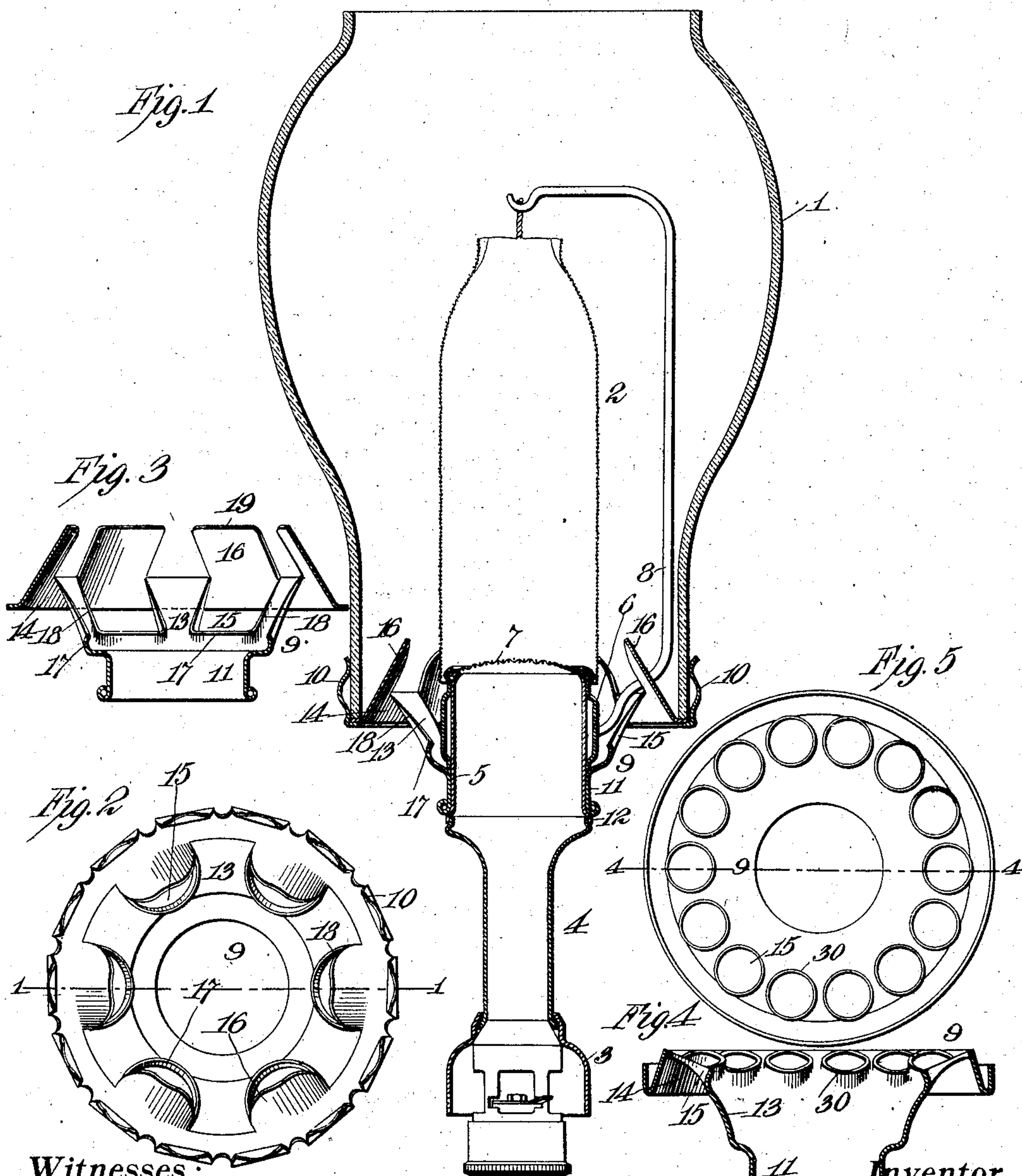


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A. P. STORRS.
INCANDESCENT GAS BURNER.
APPLICATION FILED MAR. 19, 1904.



Witnesses:

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UNITED STATES PATENT OFFICE.

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INCANDESCENT GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 790,008, dated May 16, 1905.

Application filed March 19, 1904. Serial No. 198,969.

To all whom it may concern:

Be it known that I, AARON P. STORRS, a citizen of the United States, residing in the city of Owego, county of Tioga, State of New York, have invented a certain new and useful Improvement in Incandescent Gas-Burners, of which the following is a description.

The present invention relates to improvements in burners of the type which employs a mantle in connection with a Bunsen burner and has means for admitting air into the chimney and outside of the mantle. Burners of this type with which I am familiar have openings in the lower portion of the burner for the purpose of admitting air.

The objects of the present invention are to increase the efficiency of the burner of this general type, simplify its construction, and reduce the cost of manufacture. I attain these objects by the device illustrated in the accompanying drawings, in which—

Figure 1 represents a view in section of the complete burner and the mantle and chimney. Fig. 2 is a top view of the gallery removed from the burner; Fig. 3, a sectional view of a modified form of gallery. Fig. 4 is a sectional view of a second modification, and Fig. 5 a top view of the same.

The chimney 1, the mantle 2, and the burner 3 may be of any form desired, those shown in the drawings being simply for the purpose of illustration. The burner-stem 4 has an enlarged cylindrical upper extremity 5, such as is commonly used. The cylindrical upper extremity of the stem is surrounded by the burner-tip 6, having the usual gauze 7, and attached to the burner-tip is shown the usual mantle-support 8, although the mantle may be supported in other ways than that shown. The gallery 9 is provided with chimney-supporting lips 10 on its periphery, such lips being of the usual form and having a cylindrical downward extension 11, which closely surrounds the cylindrical portion 5 of the burner-stem and abuts against a shoulder 12, which is formed thereon and by means of which the gallery is supported.

The gallery is formed with an inclined bottom 13, meeting at a large angle with an an-

nular inclined portion 14. The inclined bottom 13 is perforated at intervals, thus forming openings 15, which extend all around the gallery. These openings are for admission of air to the outside of the mantle, the air being drawn in by the difference in temperature between the outside and inside of the chimney, the warm air ascending and cold air taking its place, such cold air entering the inside of the chimney through the openings 15.

By forming the openings in the gallery instead of in the chimney the cost of the latter is much reduced and chimneys of the ordinary character may be used.

The openings being formed in the inclined bottom of the gallery will be in themselves inclined, which inclination will increase the efficiency of the burner, as the direction of the flow of air-currents will be more nearly straight and eddy-currents will be prevented.

The openings are preferably made, as shown in Figs. 1 and 2, by slitting the metal to form a tongue 16, which is then bent upward and inward and upon the same or practically the same plane as the inclined annular portion 14. The lower edge of each of the openings is bent inward, forming a lip 17, and the sides are also bent inward, forming lips 18. These lips are not bent inward at right angles to the bottom, but are at less than a right angle thereto, so that they, in connection with the tongue 16 and the inclined annular portion 14, will give to each opening the shape and configuration of a converging nozzle or funnel the walls of which converge inward and from the top and bottom and from both sides. The amount of inclination of the walls of the openings may be varied, as determined by experiment, the object being to cause a current of air to be drawn through each opening and be concentrated and impinged upon a definite point on the outside surface of the mantle.

I find that in practice the efficiency of the lamp is greatly increased by the use of such converging-walled or funnel-shaped openings just described. These openings concentrate the currents of air which pass through the openings and cause them to impinge upon a restricted amount of surface of the mantle;

but it is to be understood that all of the different currents of air strike the mantle on the same horizontal plane. I do not know at this time which portion of the mantle should receive the blast of air to secure the greater efficiency, as the point upon which the blast of air impinges varies according to the circumstances and depends upon the proportions of the parts; but I find by experiment that this point seems to coincide with the point of maximum illumination of the mantle.

The invention may be modified in various ways.

In Fig. 3 the tongue 16 is shown as formed with the free end cut square, as at 19. This forms an opening of a rectangular form and produces a larger area than that shown in Figs. 1 and 2 without unduly weakening the web of metal which separates the adjacent openings.

In Figs. 4 and 5 the openings are made smaller than those illustrated in the other views; but are more numerous. In this form no tongue appears, but the edges are turned in all around, as indicated at 30, so as to give to each opening the effect of a converging nozzle. This effect is greatly increased by the action of the inclined annular portion 14.

The invention may be modified in other ways, as will suggest themselves to persons skilled in the art.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an incandescent gas-burner the combination with a mantle, of a gallery therefor, the said gallery having a series of openings therein, said openings having inclined walls by means of which converging jets of air will be concentrated and impinged on the outside of the mantle, substantially as set forth.

2. In an incandescent gas-burner an improved gallery therefor, having a series of openings, the said openings having inclined walls, substantially as set forth.

3. In an incandescent gas-burner an im-

proved gallery therefor, having a series of funnel or walled openings and an inclined annular portion posterior to the openings and forming a portion of each, substantially as set forth.

4. In combination with a mantle and chimney, of a gallery the said gallery having openings in the bottom thereof, the said openings having inclined walls, substantially as set forth.

5. In combination with a mantle and chimney, of a gallery the said gallery having an inclined bottom and an annular inclined portion outside thereof, the said bottom having openings adjacent to such annular inclined portion, the said openings having converging walls, substantially as set forth.

6. In an incandescent gas-burner an improved gallery therefor, having a series of openings, and a separate tongue adjacent to the sides of each of said openings, substantially as set forth.

7. In an incandescent gas-burner an improved gallery therefor, having a series of openings, a tongue adjacent to the side of each of said openings, a portion of the edge of each of said openings being turned inward, substantially as set forth.

8. In an incandescent gas-burner an improved gallery therefor, having a series of openings, the edges of said openings being turned inward, substantially as described.

9. In combination with a mantle, of means surrounding the same comprising a chimney and gallery, one of said means having a series of openings having inclined walls causing a number of converging jets of air to be concentrated and impinged on the outside of the mantle, substantially as set forth.

This specification signed and witnessed this 12th day of March, 1904.

AARON P. STORRS.

Witnesses:

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