

No. 748,364.

PATENTED DEC. 29, 1903.

T. GORDON.
INCANDESCENT GAS BURNER.

APPLICATION FILED MAY 13, 1903.

NO MODEL.

Fig. 1.

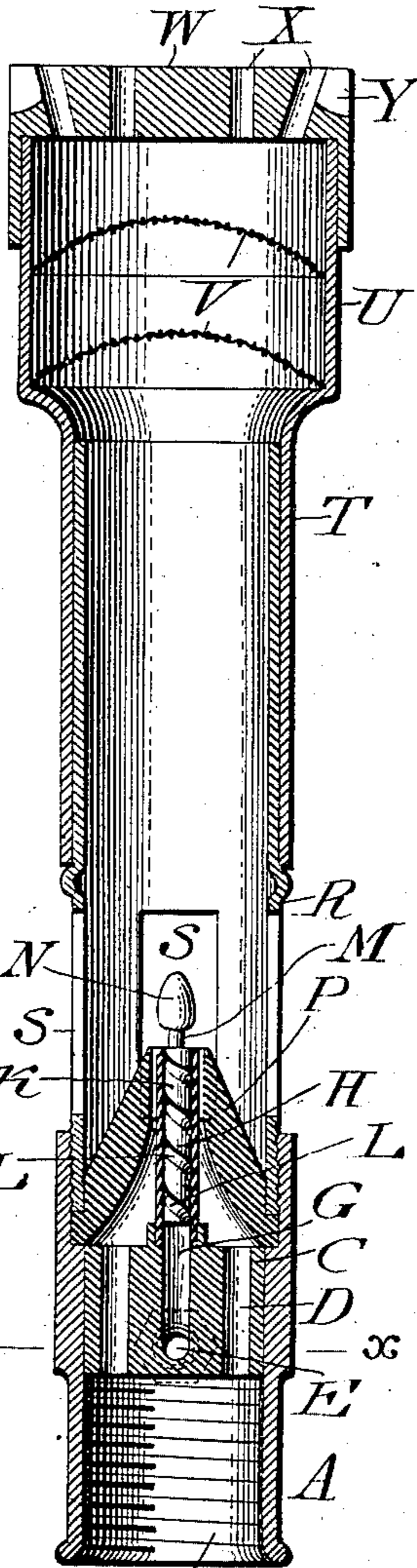


Fig. 3.

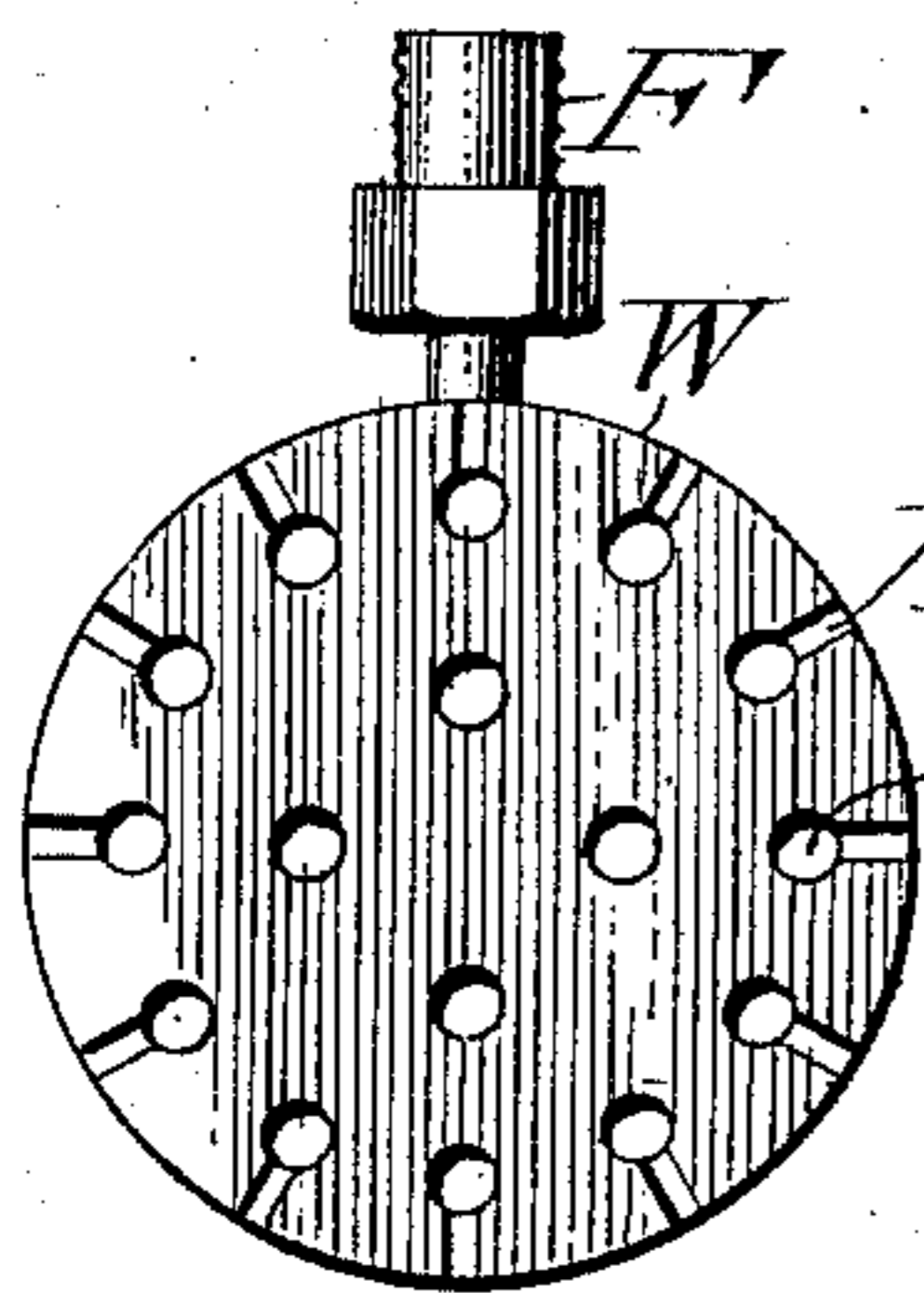


Fig. 2.

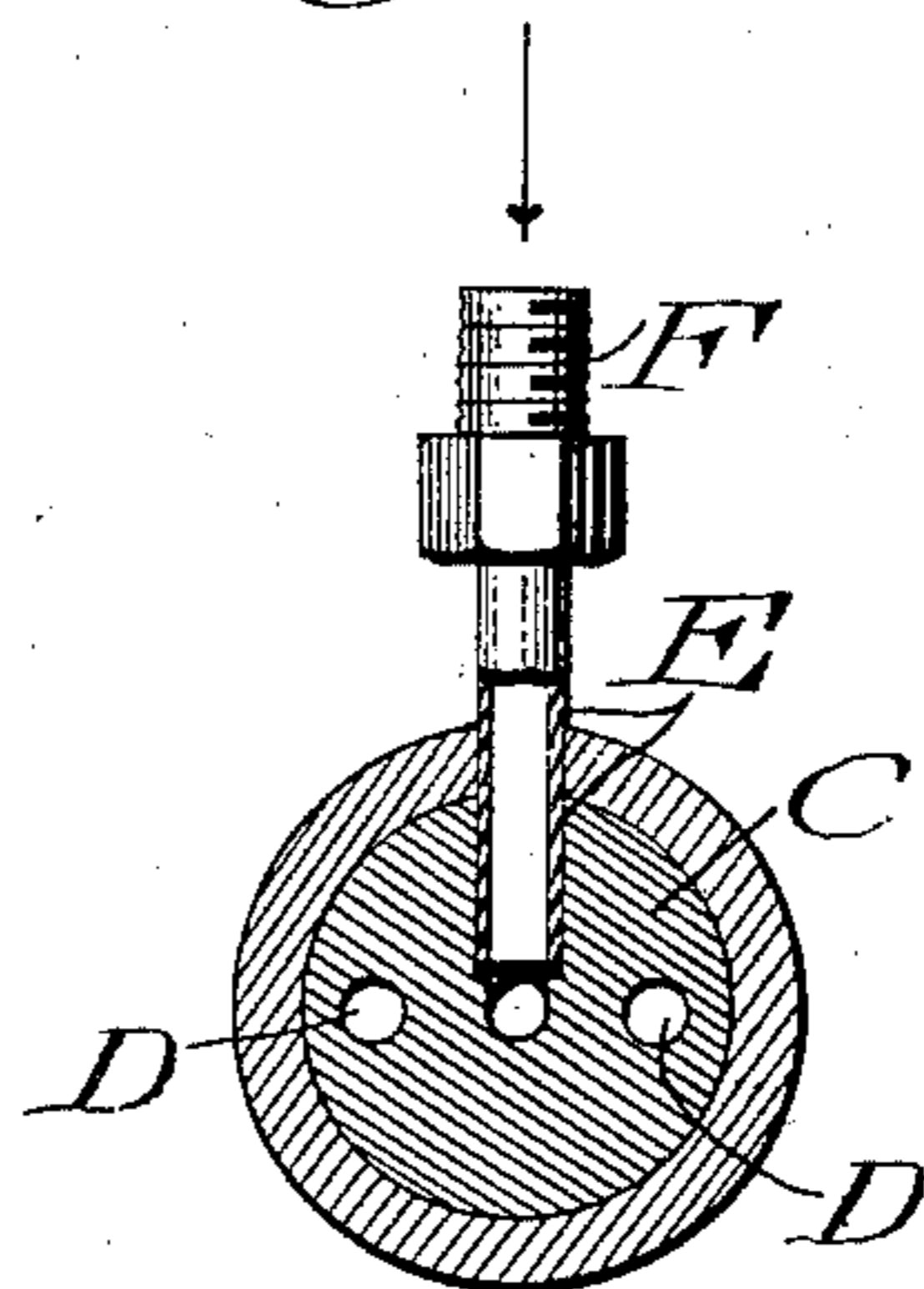
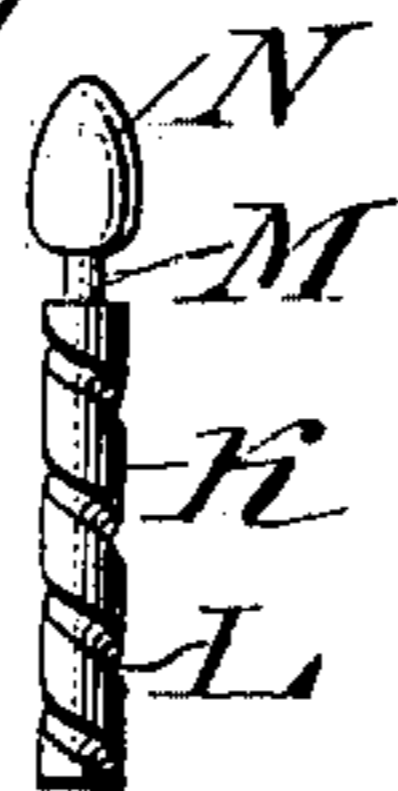


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

THOMAS GORDON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO JOSEPH J. SLEEPER, OF PHILADELPHIA, PENNSYLVANIA.

INCANDESCENT GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 748,364, dated December 29, 1903.

Application filed May 13, 1903. Serial No. 156,871. (No model.)

To all whom it may concern:

Be it known that I, THOMAS GORDON, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Incandescent Gas-Burners, of which the following is a specification.

My invention relates to Bunsen or blue-flame burners, such as are used to produce heat as to incandesce a mantle.

It consists of means for the more perfect admixture of the air and gas and of means for insuring the incandescing of the lower portion of the mantle.

It further consists of novel details of construction, all as will be hereinafter set forth.

Figure 1 represents in vertical section a gas-burner embodying my invention. Fig. 2 represents a transverse section through the line *xx*, Fig. 1, a portion of the figure being in plan view. Fig. 3 represents a top plan view of the device. Fig. 4 represents an elevation of an air-deflector.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates a burner-base threaded at B for attachment to a gas-fixture. (Not shown.) Secured within or integral with the base A is a plug C, pierced at D D for the passage of gas. Through the base A and plug C is a lateral aperture E, in which is secured a nipple F, adapted to be connected to a reservoir (not shown) of air under pressure. From the inner end of the aperture E rises an axial bore G, continued upward by a tube H. Filling the tube H is a rod K, having a spiral groove L. Connected to the top of the rod K by means of a neck M is an acorn or knob N. Secured in the base A above the plug C is a cone-frustum P, the open upper end of which is level with the top of the tube H. A tube or mixing-chamber R, secured at the upper end of the base A, is provided with the usual lateral openings or "windows" S for the admission of air. Upon the tube R is supported a shell T, in the enlarged head U of which are the usual reticulate screens V. On the end U is a cap W, pierced by a plurality of apertures X. From the outer row of these apertures radial slots Y extend to the periphery of the cap.

The operation is as follows: Owing to the groove L forming a spiral passage in the tube H, the air entering through the nipple F emerges at the top of the tube in a whirl. The gas passing up through the apertures D and through the narrow annulus between the tube H and the cone P becomes very intimately mixed with this whirling current of air, which latter is further deflected outward by the knob N. The knob serves particularly to prevent any hissing noise caused by cross-currents above the apertures. An additional volume of air necessary to economical combustion is drawn inward by the rising current through the windows S. The screens V serve to prevent back-firing and to further commingle the air and gas, which pass out of the openings X in the cap W to the mantle or article to be heated. To insure the adequate heating of the lower portion of the mantle, I cut the slots Y in the upper part of the cap W, extending radially from the outer row of apertures X to the periphery of the cap.

As will be seen in Fig. 1 of the drawings, I preferably form the cap W as a thick head and a depending skirt inclosing the tip of the shell U. The skirt serves to protect the shell from the heat deflected downward by the lower edge of the mantle.

By the phrase "spirally-grooved tube" or the like I of course intend to include the construction shown, in which a groove is cut in a rod within a tube of ordinary form.

It will be evident that various changes may be made by those skilled in the art which may come within the scope of my invention, and I do not, therefore, desire to be limited in every instance to the exact construction herein shown and described.

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

1. A gas-burner having a spiral upward passage through which air is forced, an annular gas-passage adjacent the upper end of said spiral passage and a deflector above the exits of said passages.

2. In a gas-burner, a base, a plug having apertures for the admission of gas and of air, a mixing-chamber, a spiral passage leading

from such air-aperture to said mixing-chamber and an annular gas-passage to said mixing-chamber surrounding said air-passage.

3. In a gas-burner, a base, a plug, air and
5 gas apertures in said plug, a mixing-chamber, a spirally-grooved tube extending upward from said plug into said mixing-chamber and a gas-deflector above said plug and forming with said tube an annular gas-pas-
10 sage into said mixing-chamber.

4. A gas-burner having a plurality of annularly-disposed gas-emission apertures extending through both the top and side walls thereof.

15 5. A gas-burner having a cap and a plurality of apertures in said cap forming a gas-exit through both the top and side walls thereof.

6. A gas-burner having means for the ad-
20 mixture of gas and air, a cap and a plurality of apertures in said cap extending through both the top and side walls thereof.

7. A gas-burner having a shell, a cap cov-

ering the upper end of said shell, an aperture through the top wall of said cap and a slot
25 extending from said aperture to the periphery of said cap.

8. A gas-burner having a shell, a cap covering the upper end of said shell, the top wall of which is of substantial thickness, a
30 plurality of exit-apertures through said top wall near its periphery, each of said apertures having a slot of less depth than the thickness of said top wall extending from
35 said aperture to the periphery of said cap.

9. A gas-burner having concentric passages for gas and air under pressure, means for imparting a whirling movement to the current
40 issuing from the exits of said passages, a mixing-chamber above said exits, the wall of said chamber being apertured for the admission of an additional supply of air.

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Witnesses:

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