(No Model.) D. S. ROBILLIARD & C. G. DAVIES.

GAS BURNER AND HEATER.

No. 403,612. Patented May 21, 1889.

Fig. 1

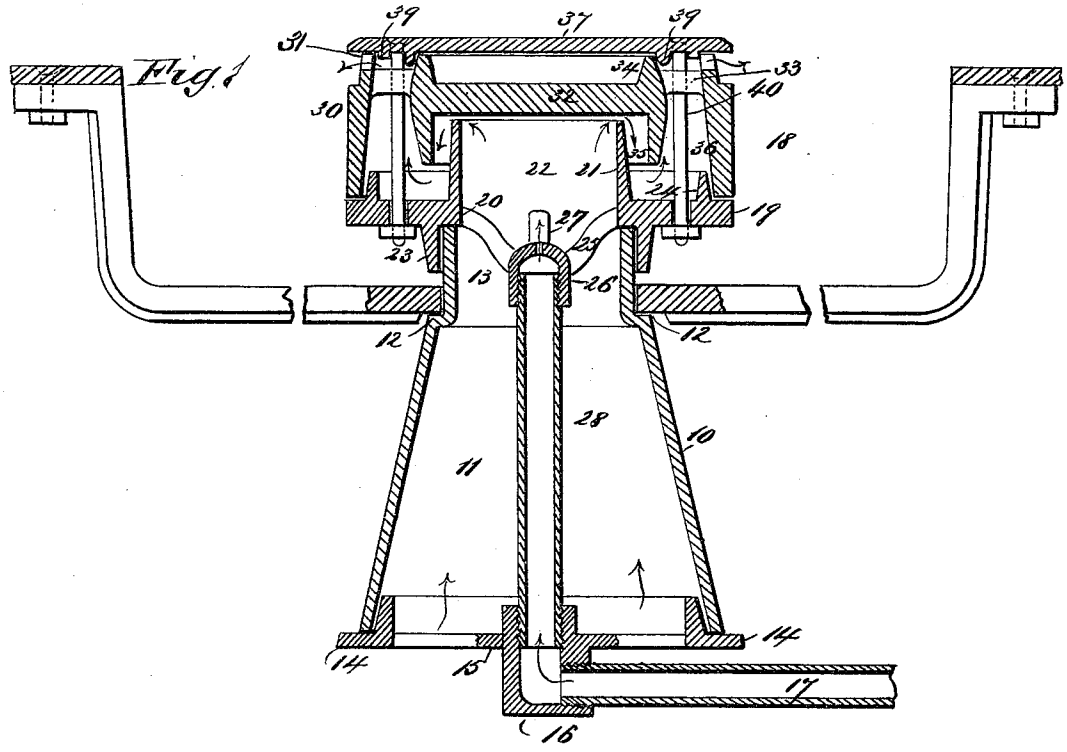
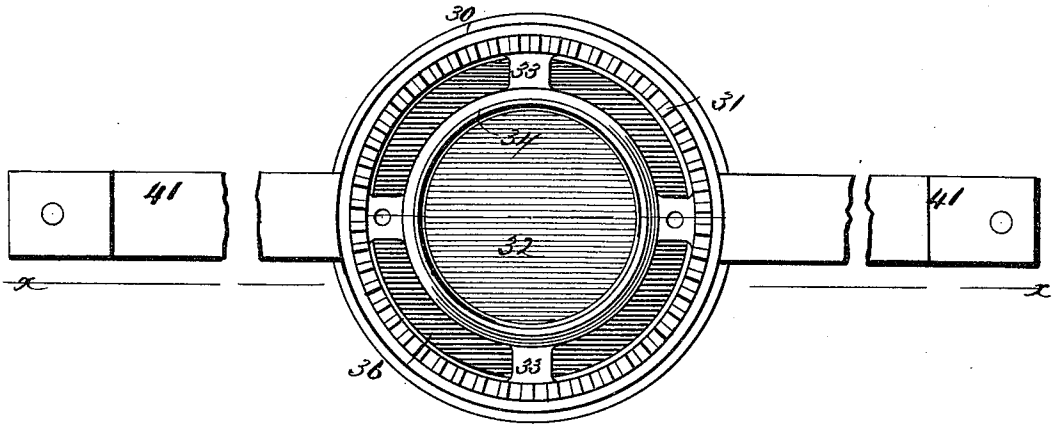


Fig. 2



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UNITED STATES PATENT OFFICE.

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GAS BURNER AND HEATER.

SPECIFICATION forming part of Letters Patent No. 403,612, dated May 21, 1889.

Application filed July 31, 1888. Serial No. 281,537. (No model.)

To all whom it may concern:

Be it known that we, DANIEL SEBIRE ROBILLIARD and CHARLES GRIFFITHS DAVIES, both of Quebec, in the Province of Quebec and Dominion of Canada, have invented a new and Improved Gas Burner and Heater, of which the following is a full, clear, and exact description.

Our invention relates to an improvement in gas burners and heaters, and has for its object to provide a burner, designed for heating and cooking purposes, of simple and economical construction, whereby a great saving in the consumption of gas will be secured; and a further object of the invention is to provide a burner wherein an effective admixture and expansion of gas and air will be obtained and the best possible results accomplished from a minimum quantity of gas.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter more fully set forth, and pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters or figures of reference indicate corresponding parts in all the views.

Figure 1 is a central vertical section through the burner, and Fig. 2 is a plan view of the same with the crown-piece removed.

In carrying out the invention the lower portion or body of the burner consists of a bell-shaped casting, 10, the interior of which is adapted to constitute an air-chamber, 11. The upper portion of the bell-shaped body is provided with a shoulder, 12, and an integral ring, 13, projected vertically upward from the said shoulder, as best shown in Fig. 1. The lower portion or base of the body consists of a detachable ring, 14, having an integral cross-bar, 15, spanning the center, and a vertical flange near the periphery purposed to engage the inner wall of the body. An elbow, 16, is cast integral with the center of the said cross-bar, the vertical member whereof is passed upward into the air-chamber 11, the horizontal member being adapted to receive the gas-supply pipe 17.

The head 18 of the burner consists of an annular base-plate, 19, having a central opening, 20, and a collar, 21, surrounding the said opening, extending vertically upward, as best illustrated in Fig. 1, the space within the collar being adapted to constitute a retort or mixing-chamber, 22.

Upon the under side of the annular base-plate 19, a short distance from the opening 20, a downwardly-projecting flange, 23, is cast, which flange is purposed to engage with the outer face of the body-collar 13, and from the upper face of the said base-plate 19, near the periphery, an upwardly-extending vertical flange, 24, is projected, the said flange being so located that a space will intervene between the inner face of the flange and the opposed face of the collar 21.

From the walls of the opening 20 in the base-plate a series of downwardly-curved solid spider-like arms, 25, are extended, which arms are united at the center of the opening 20, below the bottom of the base-plate 19, by an integral tubular cap, 26, and in the upper face of the said cap a small central aperture, 27, is made.

The base-plate 19 of the head is connected with the body 10 and the base-ring 14 of the said body, and held in connection with the same through the medium of a gas-inlet pipe, 28, secured in the bottom of the cap 26 and the inner end of the elbow 16, as shown in Fig. 1. The head 18 of the burner is completed by the addition of the ring 30, resting upon the surface of the base-plate outside of the flange 24, the said ring or band 30 having produced upon the upper edge a series of spaced lugs or teeth, 31, as best illustrated in Fig. 2.

Within the ring or band 30 a cap, 32, of smaller diameter than the said ring, is concentrically held by a series of three or more horizontal supports, 33, cast integral with the upper face of the ring 30 and the opposed surface of the said cap. The outer edge of the cap 32 is provided with an upwardly-extending flange, 34. The cap 32 is purposed to cover the upper end of the retort or mixing-chamber, and is held a slight distance above the same, the diameter of the said cap being greater than that of the collar 21, forming the walls of the retort or mixing-chamber. Thus an annular chamber, 35, is obtained sur-

rounding the collar 21, which chamber has a communication with a second chamber, 36, formed by the opposed walls of the head-ring 30 and the said collar 21. The latter chamber 36 extends upward, broken only by the horizontal supports 33. The head 32 does not engage the top of the collar 21, and is so adjusted as to insure the proper admixture of the gas and air. The annular crown-piece 37 is made to rest upon the flange 34 of the cap 32, which crown-piece extends beyond the outer edges of the teeth or projections 31, and is provided upon the under face with two spaced annular flanges, 39, one flange being adapted to engage the outer surface of the cap-flange 34, and the other flange the inner surface of the teeth or projections 31, at or near the top thereof. The crown-piece 37 and the sections of the head 18 are preferably united by two or more bolts, 40, riveted to the said crown-piece and passing through apertures in the horizontal supports 33, and likewise in the base-plate within the flange 24, the lower extremities of said bolts being provided with nuts or other equivalent fastening devices.

The burner is held in suspension within the stove-opening, or other desired place, through the medium of a yoke, 41, which yoke clamps the outer surface of the body-ring 13 and rests upon the shoulder 12. A hollow space intervening the crown-piece and the cap 32 is intended as an air-space, purposed to keep the top of the burner as cool as possible, to prevent the too sudden heating of the gas in the retort or mixing-chamber 22, and to allow the gas to expand more freely and mingle with the air as the latter is drawn in through the body 10. The air passes up through the air-chamber 11 into the mixing-chamber 22, where it is met by the gas-supply finding an exit through the aperture 27 above the supply-pipe. The air and gas are thus thoroughly commingled in the said chamber 22, and pass out through the space intervening the walls of the said mixing-chamber and the cap 32, down into the chamber 35 and up and out beneath the crown-piece through the spaces between the lugs or projections 31, as indicated by the arrows in Fig. 1.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

The combination, with a base-plate, 19, having a central opening surrounded by an upwardly-extending collar, 21, and provided near the outer edge with an annular vertical flange, 24, lugs or arms 25, projected radially from the inner wall of the base-plate opening, an interiorly-threaded cap, 26, supported centrally within the opening of the base-plate by said arms 25, and having in the top an aperture, 27, and a gas-supply pipe screwed in the said cap, of a ring, 30, supported upon the base-plate 19, outside of the flange 24, a cap-plate attached to the said ring by horizontal arms and supported thereby a slight distance above the collar of the base-plate 19, the said cap-plate 32 being provided with downwardly and upwardly extending peripheral flanges, the inner walls of which are spaced from the outer wall of the base-collar 21, teeth formed upon the upper edge of the ring 30, and a crown-piece, 37, resting upon the upper flanged cap-plate and extending over and beyond the said teeth, substantially as shown and described, whereby a commingling-chamber, 22, is formed, having an outlet in the circuitous chambers 35 and 36, and a cooling-space provided between the cap-plate and the crown-piece, as and for the purpose specified.

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