

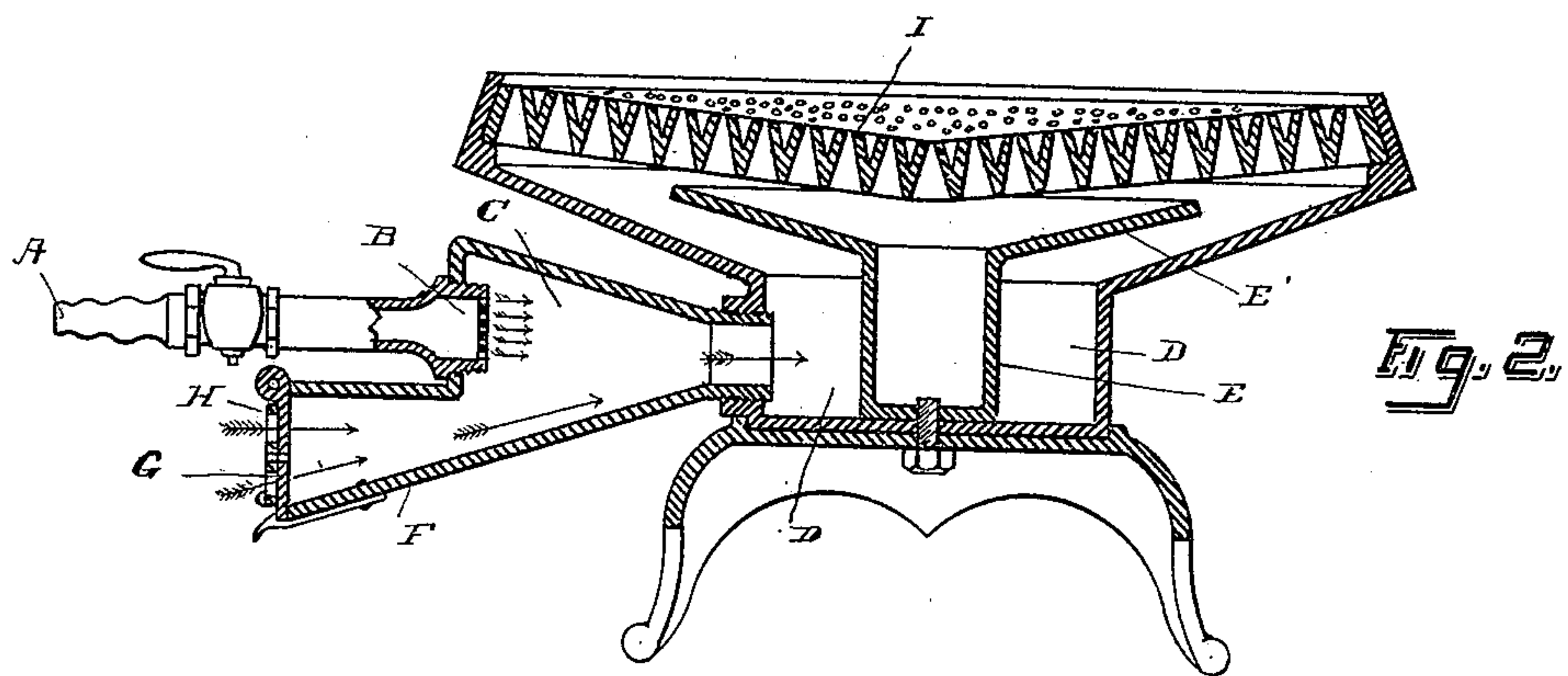
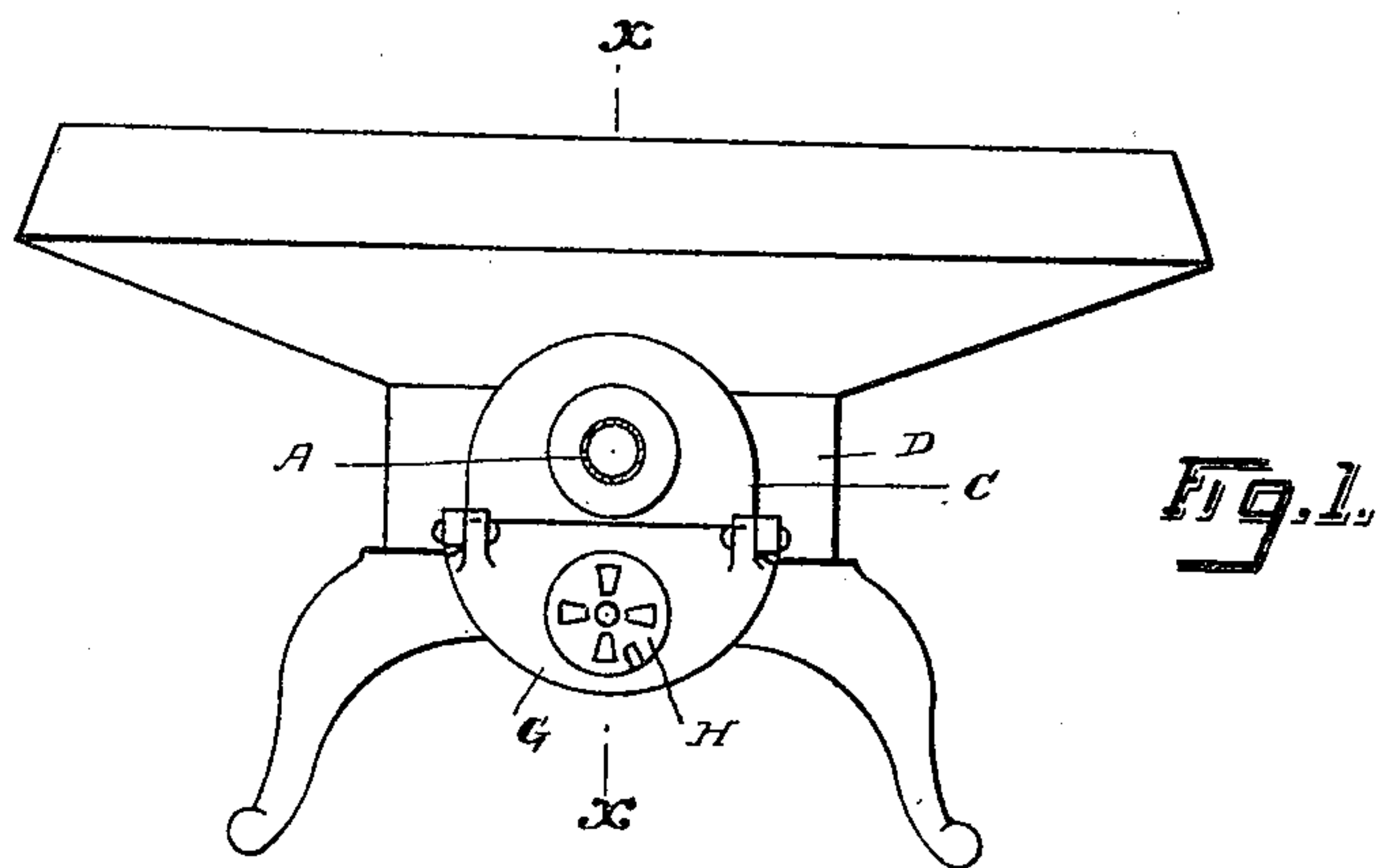
No. 624,071.

Patented May 2, 1899.

J. McCARTNEY.
GAS BURNING HEATER.

(Application filed Feb. 24, 1898.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES McCARTNEY, OF OAKLAND, CALIFORNIA.

GAS-BURNING HEATER.

SPECIFICATION forming part of Letters Patent No. 624,071, dated May 2, 1899.

Application filed February 24, 1898. Serial No. 671,526. (No model.)

To all whom it may concern:

Be it known that I, JAMES McCARTNEY, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Gas-Burning Heaters; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

This invention relates to improvements in gas-burning heaters; and it consists in the novel construction and arrangement of the parts, as herein set forth.

In the drawings, Figure 1 is a side elevation of a single burner constructed in accordance with this invention. Fig. 2 is a longitudinal section of the same on line X X.

Heaters of this class have heretofore been subjected to one prominent objection—to wit, the striking back or flashing back of the flame upon the grate-bars to the point of introduction of the gas. It is to overcome this objection in this class of devices, while producing a combustion fluid of great heat-producing quality with a minimum quantity of gas, which is the object of the present invention.

To facilitate the description with reference to the drawings, we will designate the gas-supply pipe by the letter A. The inner end of the supply-pipe is provided with a perforated tip B, by means of which the maximum flow of gas is controlled. The perforated tip B is inserted within the channel C.

The mixing-chamber D is produced by a circular or cylindrical casing, which has at its top outwardly-extending walls, as shown in Fig. 2. Centrally located within said chamber is a circular standard E with outwardly-extending walls, forming a deflecting-hood E', said hood lying above the outwardly-extending walls of the casing and producing between the hood and said casing-walls a contracted passage for the air and gas.

Extending between the tip B and the mixing-chamber D is the channel C. This is provided with an extension F below the tip and extended outward for a considerable distance from the mixing-chamber beyond the tip. This extension F is flared on approxi-

mately the same lines as the channel C. The outer end of the extension F is closed by a gate or damper G. The damper G may be provided with a perforated door H, pivotally mounted, as is common in the damper let into the fire-doors of furnaces. There is thus produced an entrance member for the gas and air which, as shown, has its exit-opening—i. e., the opening into the mixing-chamber—at its forward end, while its entrance-opening for the gas—i. e., the tip B—is at its rear side and opposite the exit-opening. The extension F produces a channel extending rearwardly from the tip B for a considerable distance. Thus when air is admitted into said channel it is, before reaching the tip B, given direction and considerable impetus along the straight oblique wall connecting the air-inlet with the opening into the mixing-chamber.

With the heater herein described the purpose designed is to produce a thorough mixture of the gas and air before igniting the same above the grate-bars I and to use the smallest quantity of gas possible. It has been discovered that by allowing the grate-bars to become primarily heated before the required maximum quantity of air is introduced the best results may be obtained, wherein the consumption of the gas will be very much reduced in proportion to the units of heat produced. It is for this purpose that the damper-door H is provided, which permits the gas from the tip B to be introduced at the start through the grate-bars with little or no mixture of air. To accomplish this, the damper G is maintained closed when the gas is first ignited. As the entire air which is mixed with the gas to produce the heating fluid is compelled to pass through this door, there is no influence on the gas to prevent its burning freely above the grate-bars at the start. As soon as the grate-bars have become heated to produce a draft to give an impetus and direction to the air admitted through the damper G the same is slightly opened. As the heat becomes stronger the opening is increased until the full volume of air is being admitted.

By the arrangement of the extension F to introduce the air and control its movement before it arrives at the tip B the gas and air

are carried forward with an impulse by means of the channel C to the mixing-chamber D. Here, however, they are caused to circulate in conjunction and are thoroughly mixed before rising under the grate-bars I. In their upward passage they are deflected by the hood E' to spread over the entire surface of the grate-bars.

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

1. In a gas-heater, a circular casing having at its top outwardly-extending walls, a circular central standard within said casing, outwardly-extending walls upon said standard, lying above the outwardly-extending walls upon the casing and forming between said outwardly-extending walls a contracted passage, a grate above said passage, and an entrance-opening for gas and air in the side of

the casing and in line with the central standard; substantially as described.

2. An entrance member for gas-heaters comprising a casing having an exit-opening at its forward end, an entrance-opening for gas at its rear side and opposite the exit-opening, and a channel extending rearwardly from the said entrance-opening for a considerable distance and having at its rear an entrance-opening for air, the outer wall of the casing extending in a straight but oblique line from the end of the casing provided with the air-inlet to the exit-opening; substantially as described.

In testimony whereof I have hereunto set my hand this 11th day of February, 1898.

JAMES McCARTNEY.

Witnesses:

E. F. MURDOCK,

GEORGE F. HATTON.