No. 700,020. Patented May 13, 1902.

J. DENNIS, JR.

COMBINED GAS AND AIR FEEDING ATTACHMENT FOR GAS STOVES.

(Application filed Mar. 27, 1901.)

(No Model.)

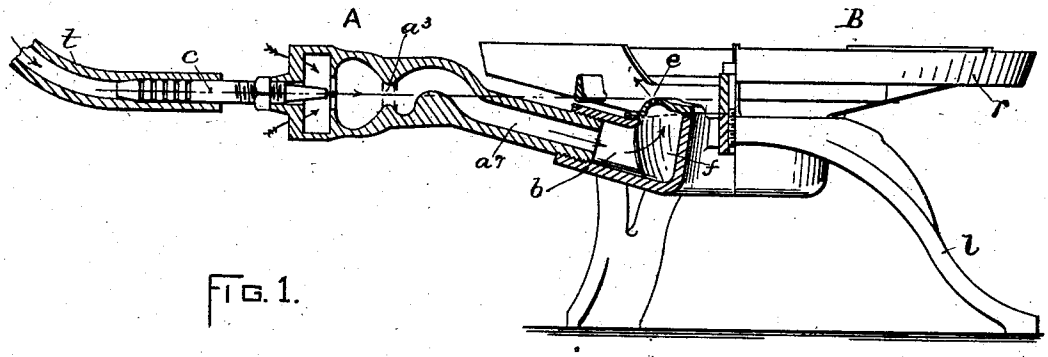


FIG. 1.

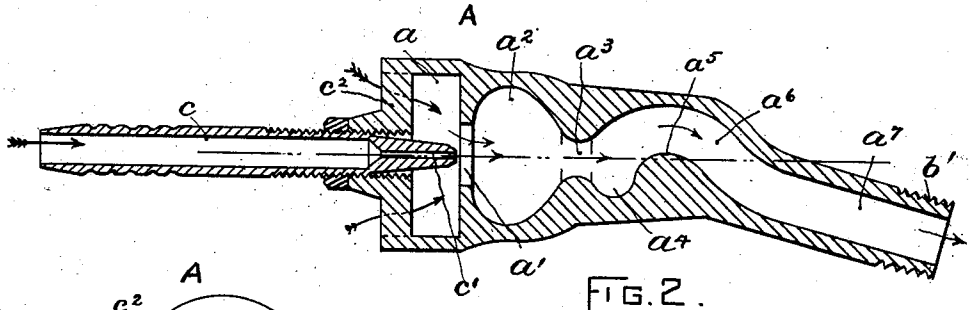


FIG. 2.

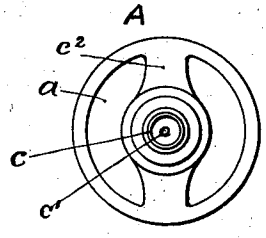


FIG. 3.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES DENNIS, JR., OF EAST PROVIDENCE, RHODE ISLAND.

COMBINED GAS AND AIR FEEDING ATTACHMENT FOR GAS-STOVES.

SPECIFICATION forming part of Letters Patent No. 700,020, dated May 13, 1902.

Application filed March 27, 1901. Serial No. 53,021. (No model.)

To all whom it may concern:

Be it known that I, JAMES DENNIS, Jr., a citizen of the United States of America, and a resident of East Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in a Combined Gas and Air Feeding Attachment for Gas-Stoves, &c., of which the following is a specification.

This invention relates to improvements in gas stoves, heaters, and other analogous articles of manufacture adapted to be heated by burning hydrocarbon gas or other suitable gas. The device forming the subject of this application for United States patent is, however, more particularly adapted to be attached to the burners of said class of heating apparatus; and it consists, essentially, of a hollow casting or member having one end thereof adapted to communicate with the usual annular space or chamber from which the previously-mixed gas and atmospheric air flow directly to the burner-orifices, the other or outer end of the device being arranged to receive the inflowing gas and air and having the interior of the casting further provided with two enlarged chambers or pockets united by a contracted passage, the entrance to the said outer or inlet pocket being also reduced in size, whereby this pocket is adapted to constitute an initial mixing-chamber for the inflowing gas and atmospheric air and from which said mixture flows via the connecting contracted passage to the other pocket of a substantially oval form, this latter in turn having a passage or duct discharging into the said burner-chamber, as before stated. By means of this construction, the contracted passage in connection with the enlarged chambers, a much better mixture of air and gas is effected and a much more steady flame is produced at the burner, causing more perfect combustion and a greater heat.

This device or attachment while possessing the efficiency and advantages referred to may be produced at a minimum degree of cost, it being simply a one-piece casting having interiorly the novel features above described.

In the accompanying sheet of drawings, Figure 1 is a side elevation, in partial central section, of a gas stove or heater of well-known construction having my improvement attached thereto as in use. Fig. 2 is a longitudinal central sectional view, enlarged, of the device detached from the stove. Fig. 3 is an end view.

In Fig. 1, at B, is represented one form of gas stove or heater, the same having an annular space f, into which the gas and atmospheric air mingled therewith is introduced and from which it passes upwardly through a series of small burner-orifices e, at which point the gas is ignited. The stove or burner B may be fixed or stationary or it may be portable and provided with suitable supporting-legs l and a flat annular table r. Communicating with said space f is an inlet-nozzle b, adapted to have a gas-tube or other analogous means secured thereto, through which the burner is supplied with gas from a service-pipe or other source of supply, all as usual.

My invention resides in the integral casting or piece A, adapted to be secured to any gas stove or heater or to the nozzle b of the stove B, as represented in the drawings. The said member A is so arranged that when in use it will lie wholly below the top of the table r, its center or axial line being substantially level with the top of the burner-orifices e, as clearly shown in Fig. 1.

The interior of the casting has a passage-way extending longitudinally therethrough of novel construction. The outer or gas and air inlet end a of said passage has a tie c^3, into which is screwed a gas-supply pipe c, having, as drawn, a small outlet or discharge-orifice c' located contiguous to the central opening a'. This latter communicates directly with the enlarged or initial mixing-chamber a^2, that is curved, as shown in Figs. 2 and 3, the curve adjacent to the inlet of the chamber being tangent to a plane transverse to the axis and the other portion of the chamber being made tapering to the outlet. The chamber terminates in the contracted central passage or duct a^3, in turn communicating with the smaller mixing-chamber or pocket a^4. From this latter the opening extends in a bent or curved form a^6 and terminates in the downwardly-inclined tubular stem portion a^7, the same screw-threaded exteriorly at b' and adapted to be screwed into

the nozzle b of the burner. At a point in the lower side of the said curved portion a^6 of the conducting-passage is formed an obstruction or projection a^5, its apex extending to or above the center or axial line.

The manner of operation is as follows: The gas discharged from the outlet end c' of the supply-pipes t c passes directly through the comparatively small opening a' into the enlarged initial mixing-chamber a^2, where it becomes mingled with the atmospheric air flowing therein via the open passages a a'. The pressure of the inflowing gas carries the now combined gas and air through the neck or contracted passage a^3 into the second enlarged space or pocket a^4, where the two fluids are further mixed, the latter being effected by the interposed obstruction a^5, which to a slight extent operates to retard its flow, after which the fluid passes via the parts a^6 a^7 of the passage-way into the burner-chamber f and thence to the burner-orifices.

The gas-stove attachment A is well adapted to be used with any suitable gas. The size of the discharge-orifice c' should, however, be changed to correspond with the capacity of the stove and pressure and kind of gas employed. When acetylene gas is used, the said opening should be correspondingly small.

I claim as my invention and desire to secure by United States Letters Patent—

In a device of the character described, a member having a passage therethrough, a transverse partition in the member having an axially-disposed aperture therein, a second partition having an aperture in alinement with said aperture, means for directing the gases to be mixed axially through one of said apertures, the member having an enlarged chamber intermediate of said partitions whose interior walls at the inlet of said chamber are of a concave form and which walls are tapering at the outlet of the chamber, the member also having the portion of the passage extending beyond said aperture in the second partition disposed at an angle to the axis of said portions, and having a cavity in the wall of the passage located opposite to the ridge formed by the bend.

Signed at Providence, Rhode Island, this 25th day of March, 1901.

JAMES DENNIS, JR.

Witnesses:

GEO. H. REMINGTON,

LEVI E. SALISBURY.