

924,390.

G. SMITH.
GAS BURNER.
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Fig. 1

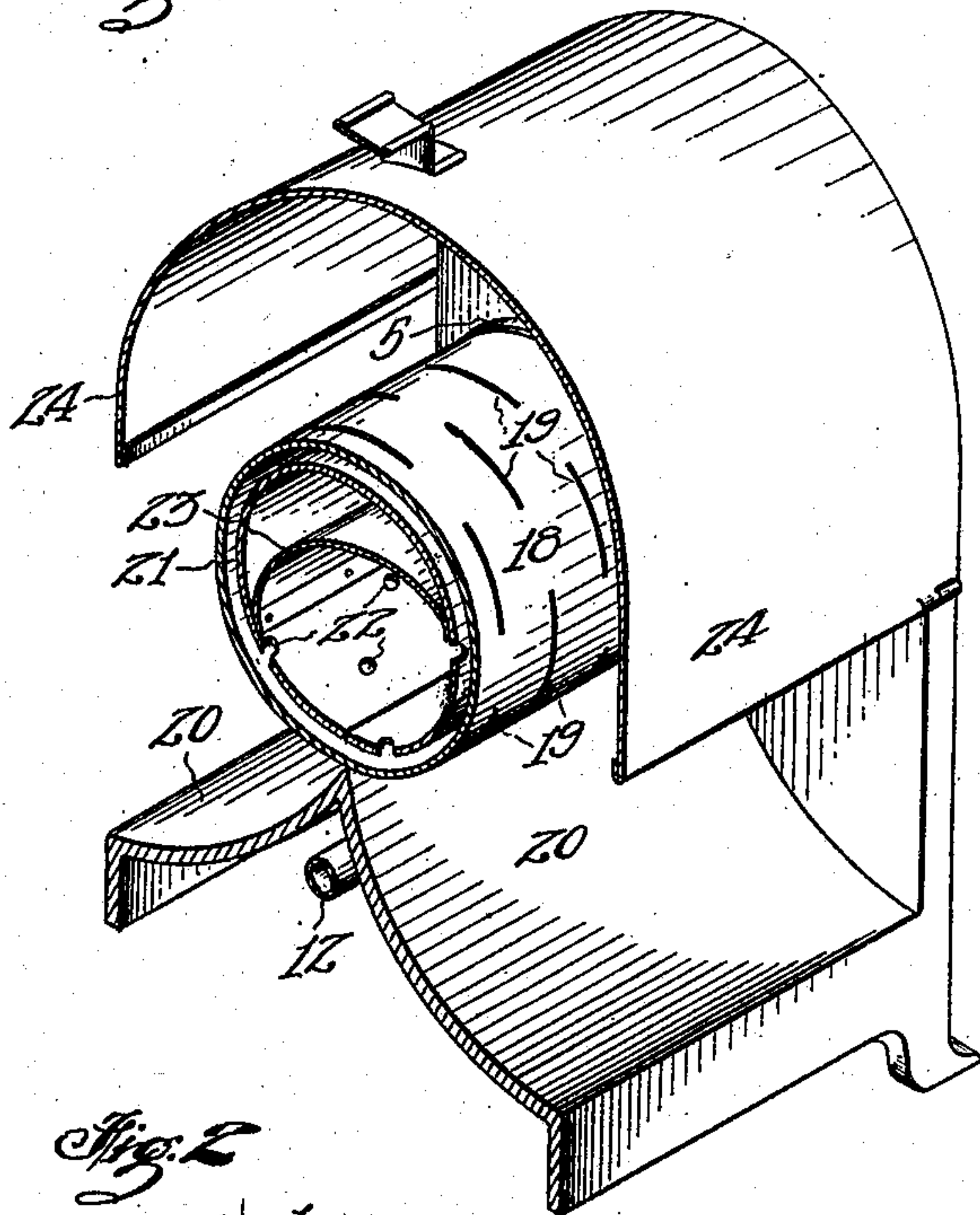
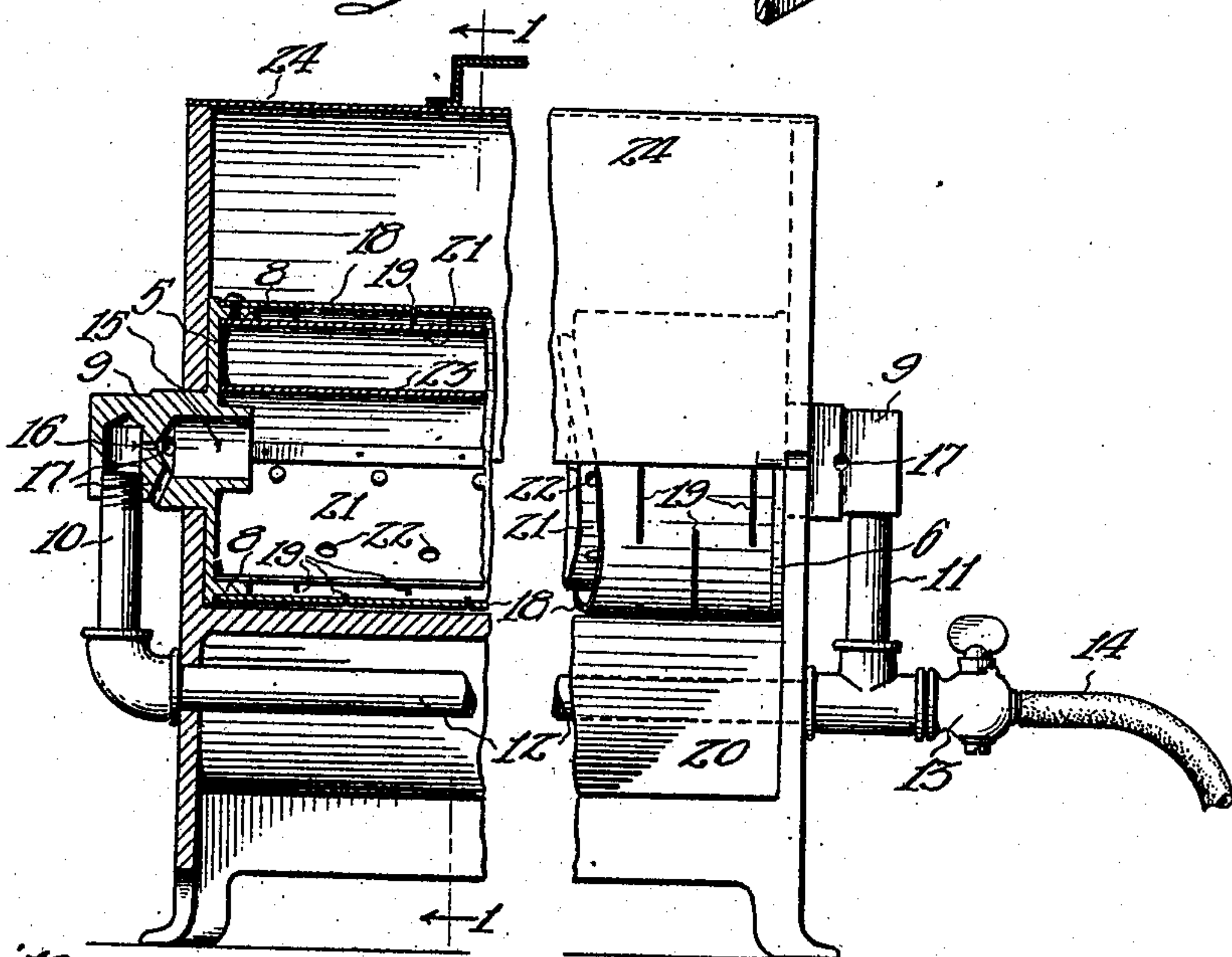


Fig. 2



Witnesses
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UNITED STATES PATENT OFFICE.

GILBERT SMITH, OF LOS ANGELES, CALIFORNIA.

GAS-BURNER.

No. 924,390.

Specification of Letters Patent.

Patented June 8, 1909.

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To all whom it may concern:

Be it known that I, GILBERT SMITH, a citizen of the United States, residing at Los Angeles, county of Los Angeles, and State of California, have invented new and useful Improvements in Gas-Burners, of which the following is a specification.

My invention relates to a gas burner designed for producing heat and the object thereof is to produce a burner in which there shall be a more perfect commingling of air and gas than can be accomplished with the usual gas burner thereby producing more perfect combustion.

Heretofore in gas burners designed for heating purposes the gas has been admitted into the mixing tube at one end thereof adjacent to an opening into the mixing tube, whereby the jet of gas would entrain the air and the mixture would pass up to the orifice of the burner where it would be ignited. In this construction there is nothing to retard the mixture as it passes to the burner, and the mixing of the gas and air depends upon the ability to commingle as they pass through the mixing tube. In my improved burner I admit a jet of gas at each end of the mixing tube, and oppose one jet to the other jet, so that one discharges directly against the other, whereby the entrained air and gas of each jet is opposed by that of the other, thereby being caused to more perfectly commingle than if not so meeting.

In the drawings forming a part of this application, Figure 1 is a section on the line 1—1 of Fig. 2. Fig. 2 is a side elevation partly in central longitudinal vertical section.

My improved burner consists of end plates 5 and 6 which are preferably circular and are provided with flanges 8. These end plates are provided with bosses 9 which are transversely bored for the reception of the branch gas supply pipes 10 and 11, which are suitably connected up to the main supply pipe 12. The main pipe 12 has a regulating cock 13 for controlling the supply of gas.

In the drawings I have shown pipe 12 provided with a flexible hose 14 for connecting to the usual gas supply pipe of the residence in which the burner is to be used, but where the burner is permanently installed a regular gas pipe would be used instead of the flexible hose. The bosses are also longitudinally bored, as shown at 15 in Fig. 2, and the bores are connected by the

jet port 16, through which the gas passes. At suitable distances around the jet port are air channels 17 through which air is entrained by the jet.

Mounted upon the flanges of the end plates and secured thereto is the perforated burner tube 18 which constitutes a chamber of the preferred form. This chamber is provided with a plurality of disconnected and preferably staggered long and narrow ports 19, which are formed by sawing slits in the burner tube. When the heater is designed for throwing out heat from both sides thereof by means of reflectors 20, I prefer to have the entire surface of the burner tube provided with these ports, but if a reflector is used only on one side I would only have ports in the reflector side and in the top half of the burner tube, but if no reflector is used I would provide ports only in the upper half of the burner tube. Within the burner tube I mount a mixing tube 21 into which the gas and entrained air is discharged. The lower portion only of this mixing tube is provided with ports 22 through which the combustible mixture passes out into the burner tube. This mixing tube is separated from the burner tube by the distance of the thickness of the flanges of the end plate, which are about $\frac{1}{8}$ of an inch thick for an ordinary heater for warming an ordinary room. The object in placing the mixing tube so close to the ports in the burning tube is to insure an equal distribution of gas to the various ports. To decrease the space within the mixing tube I provide an imperforate partition 23. A hinged cover 24 may be provided to retard the escape of heat if desired. By this construction it will be observed that better mixture of the air and gas is effected by one jet impinging upon the other than would result if the gas were admitted in the mixing chamber or tube at one end only. It will also be observed that the outer or burner tube has ports in its lower surface. In practice the gas burns at these ports and thereby heats the air and gas in the mixing chamber, which causes better combustion than is effected without such heating.

Having described my invention what I claim is:

1. A gas burner comprising a burner tube provided with a plurality of independent staggered long narrow ports in its walls, and having jet ports opening thereinto at the

opposite ends of said tube; connections from said jet ports to a gas supply pipe; a plurality of air channels around said jet ports, and opening into said tube adjacent to the
5 opening therein of said jet ports.

2. A gas burner comprising a burner tube provided with a plurality of independent staggered long narrow ports in its walls and having jet ports opening thereinto at
10 the opposite ends of said tube; a mixing chamber within said burner tube having a plurality of ports in the lower half of the walls thereof, said mixing chamber extending from one end of said burner tube to the
15 other, the jet ports and air channels opening into the opposite ends of the mixing chamber.

3. A gas burner comprising an outer chamber having a plurality of ports in the

surface thereof, a portion of the ports being 20 in the lower surface of the chamber; a mixing chamber within said outer chamber, said mixing chamber having a plurality of ports in the lower part thereof; connections from a source of gas supply opening into 25 said mixing chamber at points directly opposite each other, said openings forming jet ports discharging directly toward each other in a straight line; and a plurality of air channels opening into said mixing chamber 30 adjacent to said jet ports.

In witness that I claim the foregoing I have hereunto subscribed my name this 3rd day of April, 1907.

GILBERT SMITH.

Witnesses:

G. E. HARPHAM,
S. B. AUSTIN.