Sept. 13, 1932. C. MOOR 1,877,357

GAS BURNER

Filed March 8, 1928

Fig. 3.

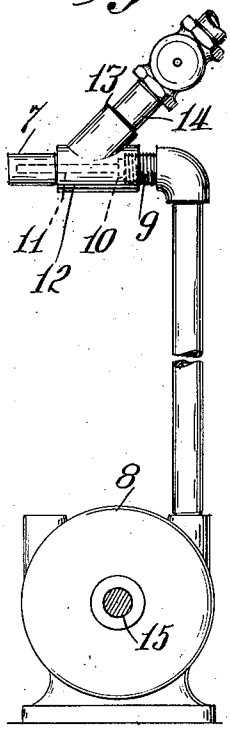


Fig. 2.

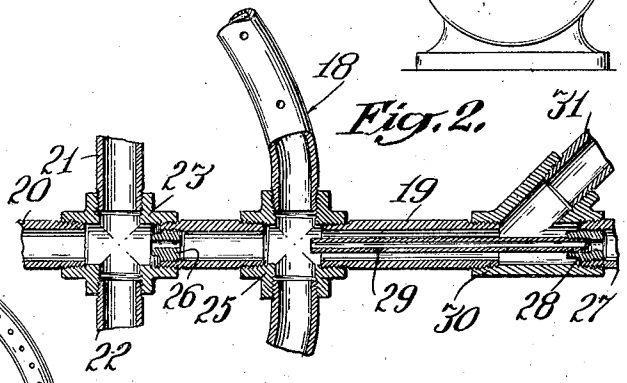
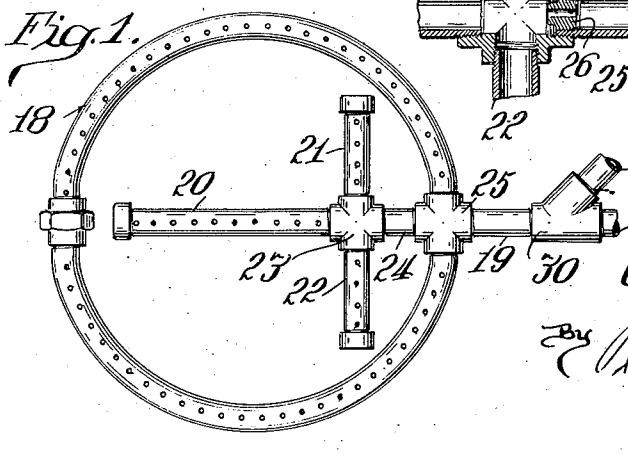


Fig. 1.



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UNITED STATES PATENT OFFICE

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GAS BURNER

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This invention relates to improvements in the type of gas burner used for house-heating and similar installations wherein a large volume of gas is consumed, the object of the invention being to provide simple and efficient means to produce a more perfect gas consumption to produce more heat per cubic foot of gas and thereby effect both economy and greater efficiency of the heating plant.

The heating of homes by means of gas supplied from public service mains is becoming constantly more popular because of the convenience and cleanliness resulting from the same as distinguished from the use of coal and the elimination of the roar and frequently the oil odor resulting from the use of oil heaters but by reason of imperfect combustion of gas in existing gas heating plants known to me, the cost of heating is very high and this high cost mitigates against general adoption of this means.

The object of the present invention is to decrease such cost and, at the same time, increase the capacity of the heating plant. The invention particularly and exclusively relates to the gas burner employed and is illustrated in the accompanying drawing wherein:

Fig. 1 is a plan view of a burner constructed in accordance with my invention.

Fig. 2 is a fragmentary plan section of the same.

Fig. 3 is a side elevation of a rotary blower or compressor of a type suitable for use with the burner of my invention.

In the drawing I have illustrated the ring type of burner without limitation to circular form. The ring burner 18 is provided at one point with an X-coupling 25 connecting the same with the fuel supply pipe 19 associated with a gas supply pipe 31 and an air supply pipe 27 connected with the air compressor 8, the shaft 15 of which is suitably geared to a source of power. A Y-coupling 30 associates pipes 19, 27, and 31, a plug 28 being mounted in the discharge end of the pipe 27 and an air supply tube 29 fitted at its intake end into said plug, said tube 29 being of so much smaller diameter than the pipe 19 as to provide an annular air passage between these pipes which extends the entire length of said pipe 19.

For better distribution of heat, however, I prefer to dispose within the ring pipe 18 a T-shaped burner which consists of the perforated pipes 20, 21 and 22, the four-way coupling 23 and pipe or nipple 24, the latter connecting with the four-way coupling 25 substituted for the T-coupling usually connecting the ring pipe with the pipe 7. In one end of the pipe or nipple 24 I dispose a plug 26 having a central bore of a diameter which is so proportioned to the diameter of bore of the ring pipe 18 and of that of the pipes 20, 21 and 22 (which are preferably all of equal diameter and of the same diameter as the ring pipe) and to the number of perforations in pipes 20, 21 and 22 proportionately to the number of perforations in the ring pipe 18, as to supply mixed air and gas to the former in proper proportion to the amount fed to the latter to equalize the velocity of flow from all perforations.

Obviously, the plug 26 affords a wall against which the air and gas impinge in part to effect commingling of air and gas and serves also to so limit the flow into the pipes 20, 21, and 22 as to prevent extinction of flame at the perforations of the latter which would result from excessive pressure or velocity of flow in said pipes. The space between the discharge end of pipe 19 and the opposed element consisting of either the plug 26, or the wall of a T-coupling substituted for the X-coupling 25 in the event that pipes 20, 21, 22, and 24 are omitted, constitutes a mixing chamber for air and gas, the velocity of these fluids causing a strong agitation and commingling thereof in said space.

The air from the compressor 8 is delivered into the pipe 27 under a pressure of from 15 to 20 lbs. so that the pipe 29 acts like an injector nozzle to draw gas into the burner pipes and delivers air at such a velocity as will cause a back-flow or rebound from opposed obstructing surfaces.

I claim as my invention:

A gas burner comprising an endless outer pipe, an X-coupling interposed therein, a burner element consisting of a series of asso-

ciated pipes disposed within the area bordered by the first-named pipe and connected at one point with said X-coupling, a plug having a central opening disposed in the intake end of said burner element, a fuel supply pipe connected with the arm of the coupling opposite to that connected with the said burner element, a gas supply and an air supply pipe associated with said fuel supply pipe, the air supply pipe including a delivery end portion of small diameter extending axially through the fuel supply pipe and providing an annular gas passage in the latter around said small pipe, an air compressor feeding the air supply pipe, and connection between the gas supply pipe and a source of combustible gas, there being perforations in the first-named pipe and said burner element.

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