V. Z. CARACRISTI.

GAS BURNER.

APPLICATION FILED OCT. 9, 1919.

1,400,024.

Patented Dec. 13, 1921.

Fig: 1.

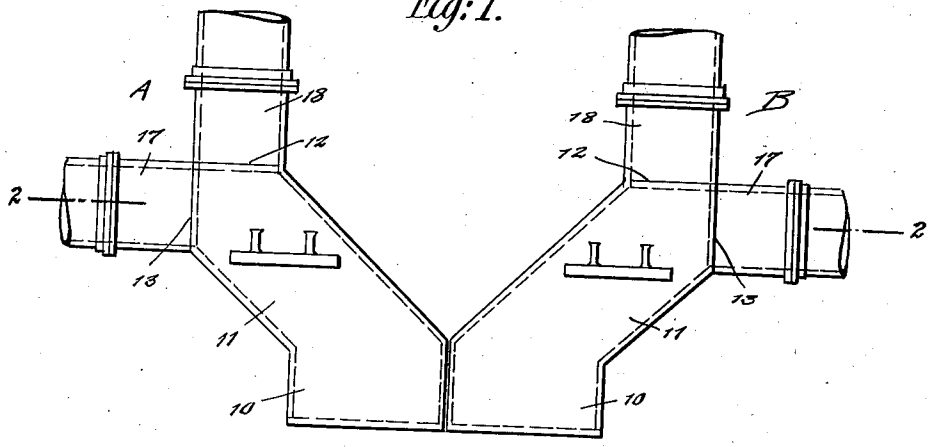


Fig: 2.

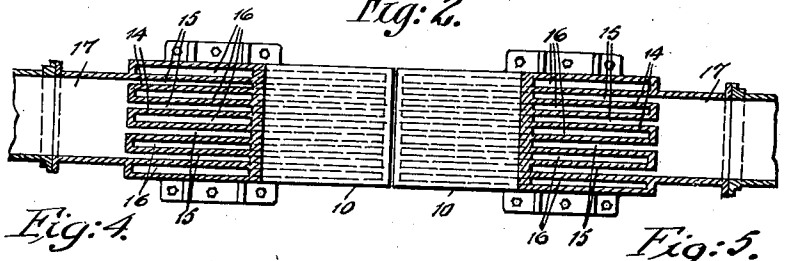


Fig: 4.

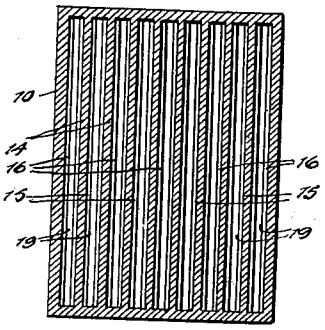


Fig: 3.

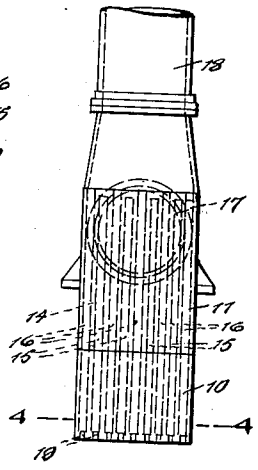
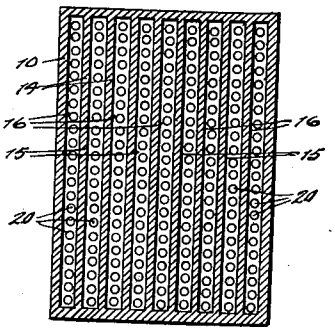


Fig: 5.



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GAS-BURNER.

1,400,024. Specification of Letters Patent. Patented Dec. 13, 1921.

Application filed October 9, 1919. Serial No. 329,532.

To all whom it may cencern:

Be it known that I, VIRGINIUS Z. CARACRISTI, a citizen of the United States, and a resident of Bronxville, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Gas-Burners, of which the following is a specification.

The present invention relates to improvements in gas burners, particularly for use in the burning of gas in heating, steam generating and other types of furnaces, an object of the invention being to provide a burner by means of which gas and air may be fed in a proper ratio to promote efficient combustion. To this end I propose to feed gas and air separately through the burner under velocity pressure, thereby permitting the air to be accurately regulated both as to velocity and pressure independently of the gas, and thereby the exact and desired proportions may be maintained.

I further propose in an embodiment of my invention to eject the air and gas from the burner in alternating imposed streams or layers of large extent and relatively thin, providing a large surface contact between the streams of air and gas, and consequently a thorough and uniform mixing of the entire body of air with the entire body of gas. Inasmuch as the air is fed independently of the gas, the amount of gas in relation to air may be brought down to a minimum, and low volatile gas may be burned with greater efficiency than has heretofore been possible.

With these and other objects in view, embodiments of my invention are shown in the accompanying drawings and these embodiments will be hereinafter more fully described with reference thereto and the invention will be finally pointed out in the claims.

In the accompanying drawings,

Figure 1 is a front elevation of one embodiment of my invention, and showing two burners placed with their outlet ends adjacent to each other;

Fig. 2 is a horizontal sectional view taken along the line 2—2 of Fig. 1;

Fig. 3 is a side elevation of one of the burners;

Fig. 4 is a horizontal sectional view enlarged, taken along the line 4—4 of Fig. 3; and

Fig. 5 is a similar sectional view of a modified form of construction.

Similar reference characters indicate corresponding parts throughout the several figures of the drawings.

Referring to the drawings, the burner according to the present embodiment of my invention comprises an outlet portion 10, vertically disposed, and of rectangular shape laterally, and an inclined upwardly extending portion 11 terminating in a horizontally disposed end 12, and a vertically disposed end 13. In Figs. 1 and 2, I have illustrated two burners A and B arranged side by side, but it will be understood that only one burner may be used if desired, or more than two burners may be used.

Within the outlet portion 10 and the extension 11, there are provided a plurality of spaced hollow walls or partitions 14, the spaces 15 between the walls being substantially of the same extent as the spaces 16 within them, the spaces within the walls being closed along the vertical end 13 and open along the horizontal end 12, while the spaces between the walls are open along the vertical end 13 and closed along the horizontal end 12.

The spaces 15 between the walls are in communication with a horizontally disposed gas inlet 17 adapted to feed gas under regulated velocity pressure and volume through the spaces 15, while the spaces 16 are in communication with a vertically disposed air feed inlet 18 adapted to feed air through the spaces 16, also under regulated velocity pressure and volume. Any suitable means may be provided for regulating the velocity pressure of the gas and air.

The outlets of the spaces 15 and 16 are of reduced width as at 19, being in the form of closely adjacent narrow slots. The alternate layers of gas and air emerging from the slotted outlets form a stratified stream at the exit, the gas and air then becoming thoroughly intermixed. The air is thus distributed throughout the core and the surrounding or exterior parts of the stream, and the regulation of the air both as to a velocity pressure and volume enables a proper quantity of air to be provided depending upon

the quality of the gas. A maximum combustion efficiency is thereby obtained, and this may be maintained, with proper regulation, with either low or high volatile gas.

In Fig. 5 I have illustrated a modified form of outlet in which I provide a series of holes 20 through which the layers of gas and air emerge.

I have illustrated and described preferred and satisfactory embodiments of my invention, but it is obvious that changes may be made therein within the spirit and scope thereof as defined in the appended claims.

I claim:

1. A gas burner comprising a body portion having an outlet and an angularly extending portion leading from the outlet, said outlet portion and said angularly extending portion having therein longitudinally extending and closely spaced apart narrow and broad passages, and said angularly extending portion having independent gas and air inlets with the gas inlet communicating with alternate passages and the air inlet communicating with intermediate passages, whereby gas and air may be delivered to the angularly inclined portion at different velocity pressures and may be delivered from said outlet portion in adjacent thin films for promoting combustion of the gas.

2. A gas burner comprising a body portion having an outlet portion and an inlet portion, the body and outlet portions having closely spaced apart and longitudinally extending narrow and broad passages, and the inlet portion having an independent gas inlet communicating with alternate passages and an air inlet communicating with intermediate passages, whereby gas and air may be delivered to the body portion at different velocity pressures and may be delivered from said outlet portion in adjacent thin films for promoting combustion of the gas.

3. A gas burner comprising a body portion having a vertically disposed outlet and an inclined upwardly extending portion leading from the outlet, said vertically disposed outlet portion and said upwardly extending portion having therein longitudinally extending and closely spaced apart narrow and broad passages, and said upwardly extending portion having independent gas and air inlets with the gas inlet communicating with alternate passages and the air inlet communicating with intermediate passages, whereby gas and air may be delivered to the upwardly inclined portion at different velocity pressures and may be delivered from said outlet portion in adjacent thin films for promoting combustion of the gas.

4. A gas burner comprising a body portion having a vertically disposed outlet and an inclined upwardly extending portion leading from the outlet, said vertically disposed outlet portion and said upwardly extending portion having therein longitudinally extending and closely spaced apart narrow and broad passages, and said upwardly extending portion having independent gas and air inlets with the gas inlet communicating with alternate passages and the air inlet communicating with intermediate passages, whereby gas and air may be delivered to the upwardly inclined portion at different velocity pressures and may be delivered from said outlet portion in adjacent thin films for promoting combustion of the gas, said outlet portion being slitted at its outer end in register with said passages and said slits being of less width than said passages whereby to effect the delivery of the sheets of gas and air in relatively fine films.

In testimony that I claim the foregoing as my invention, I have signed my name hereunder.

VIRGINIUS Z. CARACRISTI.