

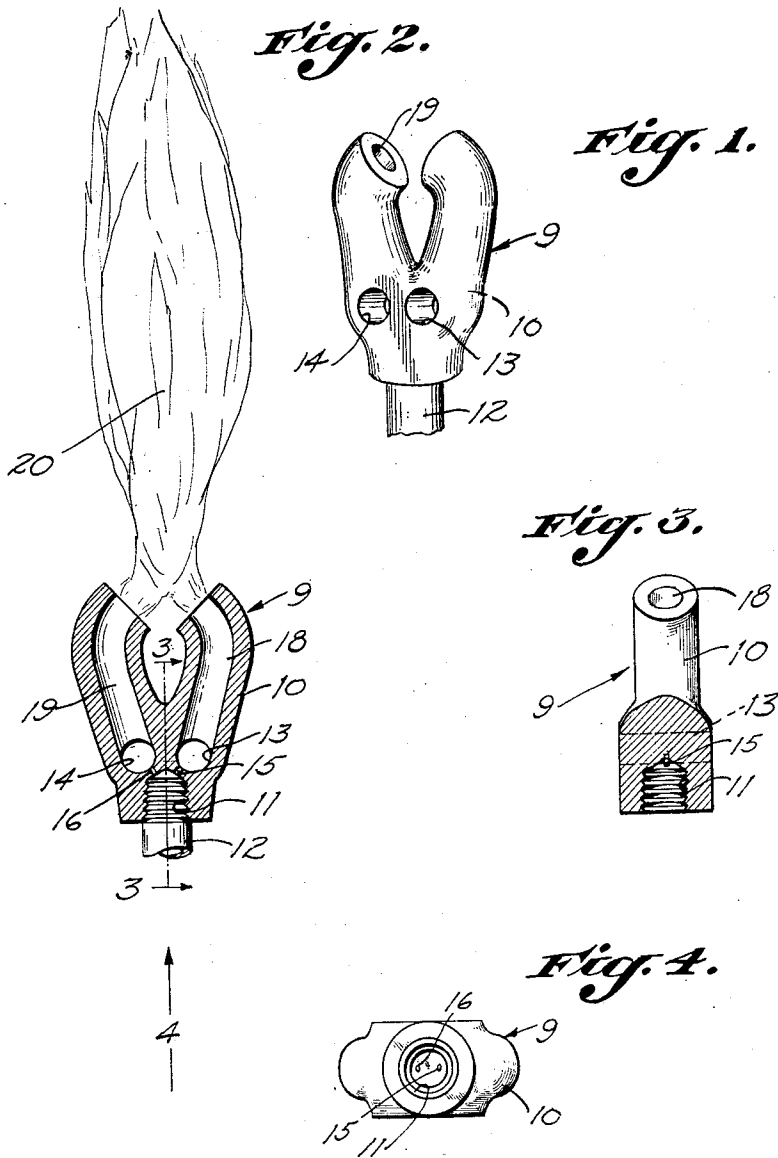
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1,801,946

GAS HEATER BURNER

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UNITED STATES PATENT OFFICE

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GAS-HEATER BURNER

Application filed December 5, 1927. Serial No. 237,679.

My invention relates to gas burners and has as a general object the provision of a novel and inexpensive burner of superior characteristics which is suitable for use in stoves, water heaters, and other domestic equipment.

In my Patent No. 1,622,820, issued March 29, 1927, I have set forth a gas burner in which a plurality of jets of mixed gas and air coincide to burn in a single flame. The gas and air are mixed in a mixing bowl from which passages lead to form the several jets. This burner more nearly completely consumes the gas fed to it than any other burner known. I have sought, however, to find a means of increasing the quantity of gas which such a burner will handle, and it is an object of my invention to accomplish this purpose.

Further objects and advantages will be manifest in the following description and in the accompanying drawings illustrating a preferred embodiment of my invention, and in which—

Fig. 1 is a perspective view of the gas burner of my invention.

Fig. 2 is a vertical medial sectional view of the gas burner in Fig. 1.

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is a bottom plan view of the burner.

Referring to the drawings in detail, a burner 9 of my invention is preferably formed of a body 10 which may be of metal, bakelite or any other suitable material. A gas supply passage 11 is formed in the bottom of the body 10, this passage being tapped to threadedly receive a gas supply pipe 12. The upper surface of the gas supply passage 11 is conical in shape and air supply passages 13 and 14 are bored transversely through the body 10 on opposite sides and equidistant from the vertical axis of gas supply passage 11.

Bored through the material intervening between the gas supply passage 11 and the air inlet passage 13 is a gas jet hole 15 which diverges at a sharp angle from the axis of the gas supply passage 11. Formed symmetrically with the gas jet hole 15, relative to the central axis of the gas supply

passage 11, is a second gas jet hole 16 which communicates between the gas supply passage 11 and the air inlet passage 14.

Gas and air mixture passages 18 and 19 are formed in the body 10 so as to communicate respectively with the air inlet passages 13 and 14 and so as to extend upward therefrom symmetrically on opposite sides of the vertical axis of the body 10 and turn at their upper ends so as to converge toward each other.

The operation of my burner is as follows:

Gas supplied to the supply passage 11 through the pipe 12 passes through the holes 15 and 16 into the air inlet passages 13 and 14 respectively. Here the jetting effect of the gas discharged through the holes 15 and 16 draws air in through opposite ends of the air holes 13 and 14 and mixes it with the gas as it passes up the gas and air mixture passages 18 and 19. As the mixture is discharged in the upper ends of the passages 18 and 19 and ignited it forms a very tall and hot flame 20 in which the gas is practically completely consumed.

Owing to the fact that a separate gas jet hole is provided, opening from the gas supply passage 11 into each of the air inlet passages 13 and 14, which in turn separately and individually supply a mixture of air and gas to the mixture passages 18 and 19, an extremely large volume of gas may be mixed and directed from the upper ends of the mixture passages to form the flame 20. As a result of this fact, in combination with the extremely compact structure of the burner due to its being formed completely by a single body of material, an unusually large amount of gas can be completely consumed by the single burner 9, thus making it possible to reduce the number of burners used to a small fraction of the number previously required for a given heating purpose.

With particular reference to Fig. 2, it will be noted that the respective gas jet holes 15 and 16 are bored at an angle to the longitudinal axis of their associated mixture passages 18 and 19 so that the gas jetting from these jet holes will discharge against a wall of the respective mixture passages, it being

evident that the gas stream will thus be immediately broken up, its particles rebounding from said wall and across the mixture passage in various directions to again smash against another portion of the wall of said passage and again rebound. This more or less zig-zag clash and rebound travel of the gas will cause a thorough intermixing of the gas and air throughout the entire area of the mixture passages, and is a very advantageous condition which will not be present in a similar burner having its gas jets discharging along the axes of the mixture passages, it being evident that in event of a gas jet axially aligned with a mixture passage the jet merely takes an axial path through said mixture passage, leaving the rest of the area of said passage practically undisturbed.

I claim as my invention:

1. A gas burner comprising: a body, there being formed therein a gas supply passage, gas and air mixture-conducting passages terminating with their axes converging toward each other, air inlet passages, each connecting with one of said gas and air mixture passages, and gas jet holes, each connecting said gas supply passage with one of said air inlet passages and arranged to discharge its jet toward a wall of the respective mixture passage.

2. A gas burner comprising: a body, there being formed therein a gas supply passage, gas and air mixture-conducting passages terminating with their axes converging toward each other, air inlet passages, each connecting with one of said gas and air mixture passages and opening into the atmosphere at its opposite end, and gas jet holes, each connecting said gas supply passage with one of said air inlet passages and arranged to discharge its jet toward a wall of the respective mixture passage.

3. A gas burner comprising: a one piece body, there being formed therein a gas supply passage, gas and air mixture-conducting passages terminating with their axes converging toward each other, air inlet passages, each connecting with one of said gas and air mixture passages, and gas jet holes, each connecting said gas supply passage with one of said air inlet passages and arranged to discharge its jet toward a wall of the respective mixture passage.

4. A gas burner comprising: a one piece body, there being formed therein a gas supply passage, gas and air mixture-conducting passages terminating with their axes converging toward each other, air inlet passages, each connecting with one of said gas and air mixture passages and opening into the atmosphere at its opposite end, and gas jet holes, each connecting said gas supply passage with one of said air inlet passages and arranged to discharge its jet toward a wall of the respective mixture passage.

5. A gas burner comprising: a body, there being formed therein a single, tapped gas supply passage, gas and air mixture-conducting passages terminating with their axes converging toward each other, air inlet passages, each connecting with one of said gas and air mixture passages, and gas jet holes, each connecting said gas supply passage with one of said air inlet passages and arranged to discharge its jet toward a wall of the respective mixture passage.

6. A gas burner comprising: a one piece body, there being formed therein a single, tapped gas supply passage, gas and air mixture-conducting passages terminating with their axes converging toward each other, air inlet passages, each connecting with one of said gas and air mixture passages and opening into the atmosphere at its opposite end, and gas jet holes, each connecting said gas supply passage with one of said air inlet passages and arranged to discharge its jet toward a wall of the respective mixture passage.

7. A gas burner comprising: a one piece body having a gas supply passage, a gas and air mixture-conducting passage, an air inlet passage between said supply passage and said mixture passage, and a gas jet hole communicating with said supply passage and adapted to discharge a jet of gas across said air passage and into said mixture passage, said gas jet hole being angled relative to the axis of said mixture passage to direct said jet toward a wall of said mixture passage.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 30th day of November, 1927.

WILLIAM B. BASTIAN.