F. W. GAULT, JR.

GAS BURNER.

APPLICATION FILED JAN. 24, 1910.

1,024,443. Patented Apr. 23, 1912.

Fig. 1.

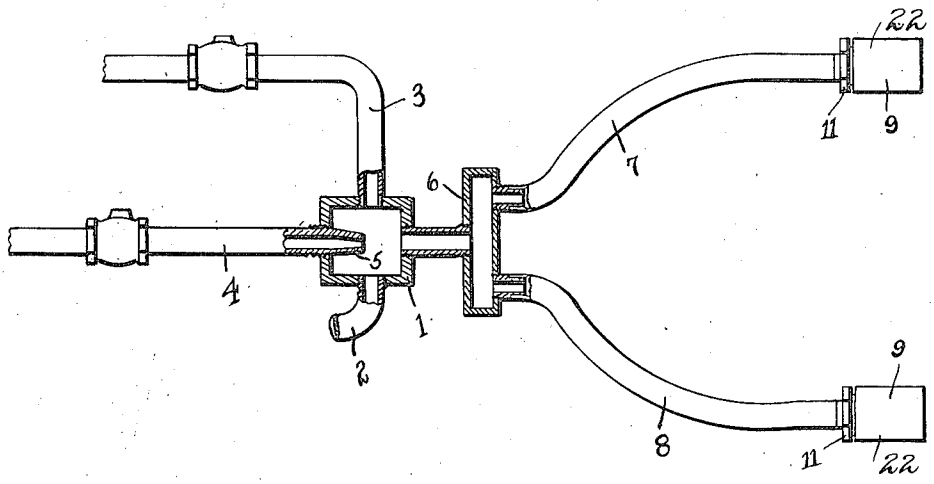


Fig. 2.

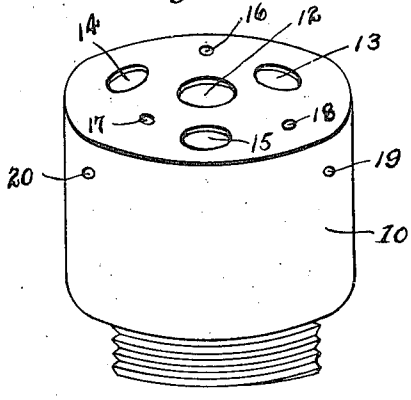
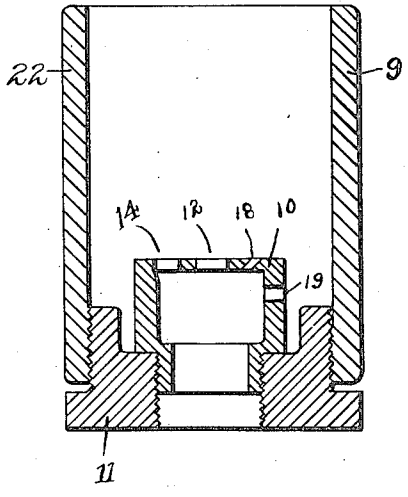


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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GAS-BURNER.

1,024,443. Specification of Letters Patent. Patented Apr. 23, 1912.

Application filed January 24, 1910. Serial No. 539,767.

To all whom it may concern:

Be it known that I, FRANK W. GAULT, JR., a citizen of the United States, and a resident of Louisville, in the county of Jefferson and State of Kentucky, have invented a new Improvement in Gas-Burners, of which the following is a full, clear, and exact description.

The object of my invention is to improve the construction of gas burners so that they will burn more economically, more effectively, and with less likelihood of going out.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claim.

In the drawings, in which similar numbers of reference refer to similar parts, Figure 1 is an elevation in part section of the device; Fig. 2, a perspective view of the spraying cap; and Fig. 3, a vertical section of the nozzle through the holes 14, 12, 18, and 19 of Fig. 2.

The mixing chamber 1 receives gas through the valve-controlled pipe 3 on one side, free air through the pipe 2 on the other side and compressed air through the valve-controlled pipe 4, emitted through the nozzle 5 into its center. If the gas is to be burned at more than one point the mixed gas is then conducted to the distributing chamber 6 and from thence in flexible pipes 7 and 8 to the burning nozzles 22. If there is but one burning nozzle, the mixed gas will be conveyed directly from the mixing chamber 1 to the burning nozzle 22. The burning nozzle 22 consists of the connecting piece 11, into the center of which is screwed the spraying cap 10, and the containing cylinder 9 which is screwed outside the connecting piece 11 and may be of any desired length.

The spraying cap 10 has main passages 12, 13, 14, and 15 through which the main portion of the gas passes. It also has in its top small passages 16, 17, and 18 which slant diagonally toward the cylinder 9 and are adapted to direct small columns of gas against its wall. Directly below each of these slanting passages in the side of the spraying cap 10 are horizontal passages, two of which, 19 and 20 are shown in Fig. 2 below the passages 18 and 17 respectively.

In the ordinary burner, when the pressure of the air admitted through the pipe 4 becomes too strong, the flame is blown out too far, the connection is broken, and the flame goes out. By making the cap 10 of larger cross-section than the passage which leads into it, I provide a sleeve or casing of gas which keeps burning the lazy flames at the outside ends of passages 19 and 20 when a strong column of air shot through the center of the cap 10 causes all the flames burning from the top of the cap to go out. The purpose of the small slanting passages 16, 17, and 18 is to shoot small columns of combustible gas directly over the lazy flames burning at the passages 19, 20, et cetera, thus causing all the columns of combustible gas passing through the top of the cap to ignite rapidly from the lazy flames burning at the side of the cap.

By introducing free air through the passage 2 into the mixing chamber 1, I provide more oxygen for combustion, make the combustion thereby more complete, and save a considerable part of the compressed air which would otherwise have to be introduced through the passage 4.

I do not limit myself to the exact form in which my invention is embodied herein.

I claim:

In a gas burner, in combination, a nozzle and a spraying cap therein; said cap having one or more openings in its side adapted to direct gas against the side of said nozzle, one or more openings in its top adapted to direct gas diagonally against the side of said nozzle directly above said lateral openings, and one or more other openings in its top adapted to direct gas into said nozzle; said nozzle extending far enough beyond said spraying cap to contain said diagonal columns of gas.

FRANK W. GAULT, JR.

Witnesses:
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