(No Model.)

I. BROOKE.

BURNER FOR GAS STOVES.

No. 551,715. Patented Dec. 17, 1895.

Fig. 1.

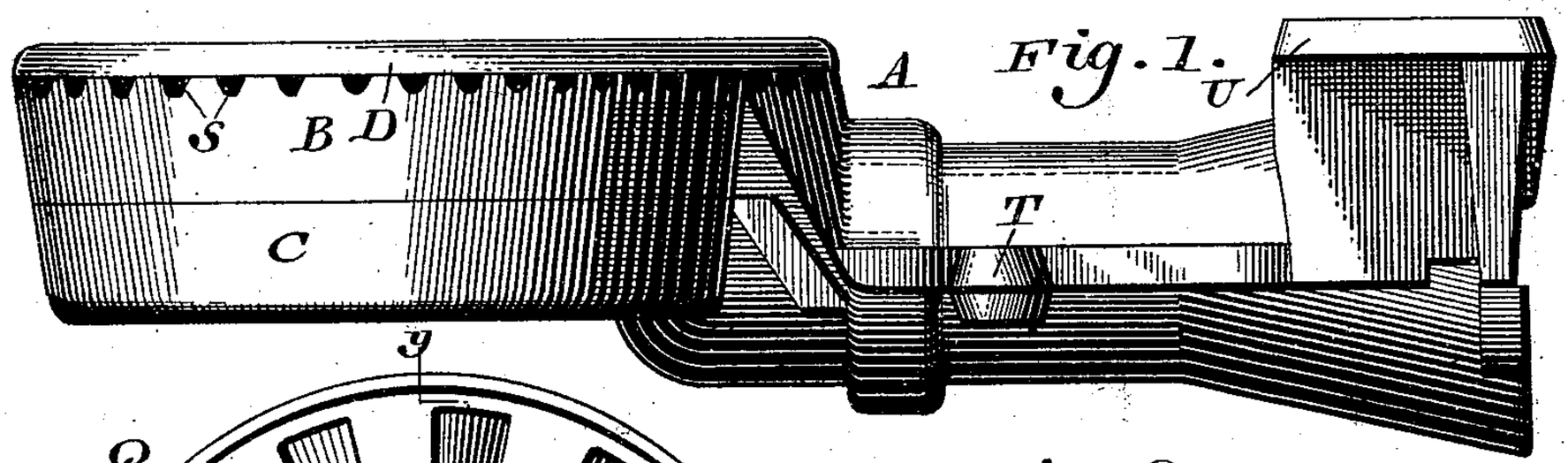


Fig. 2.

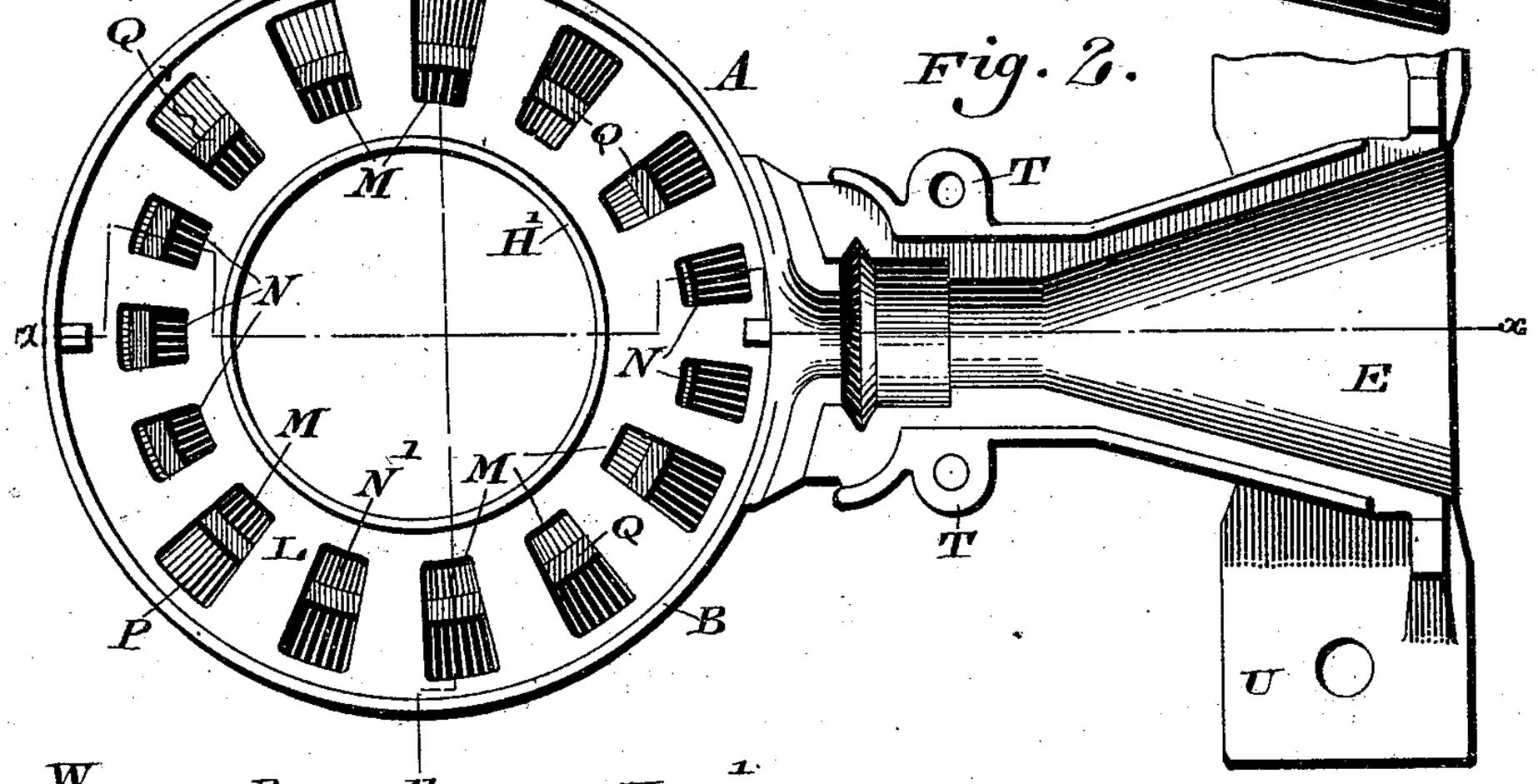


Fig. 3.

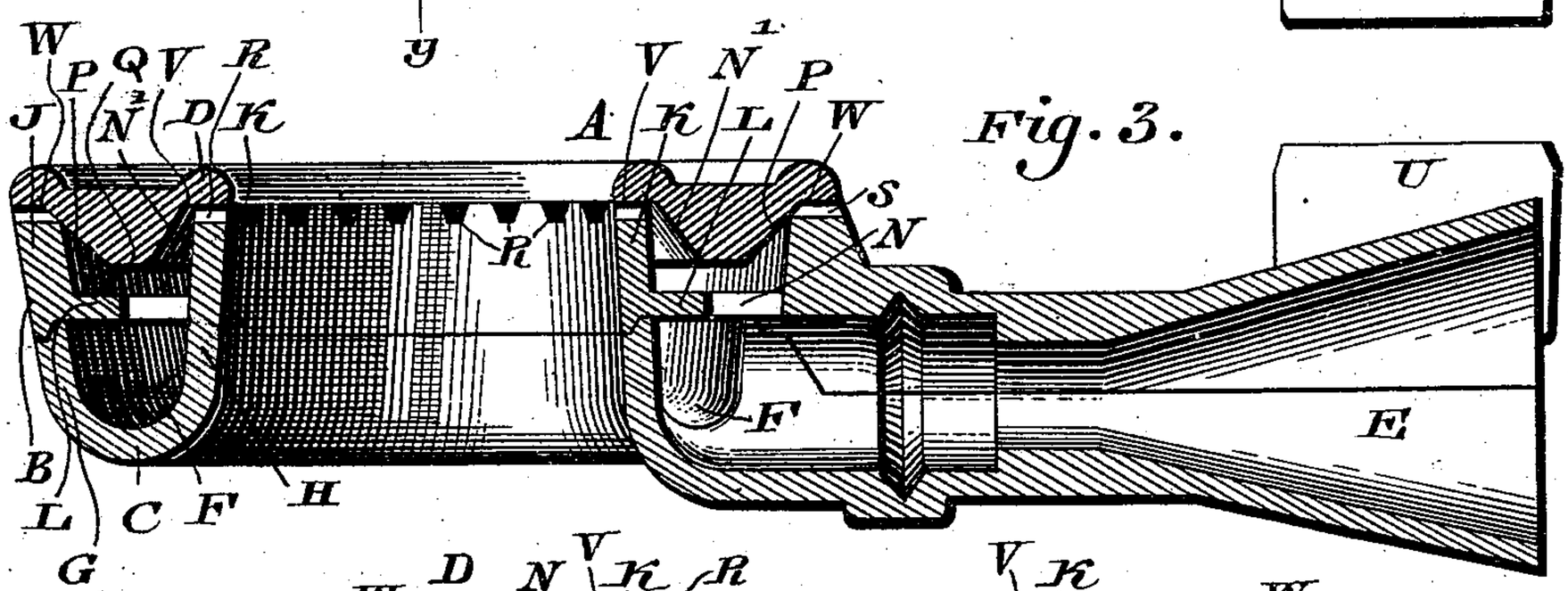
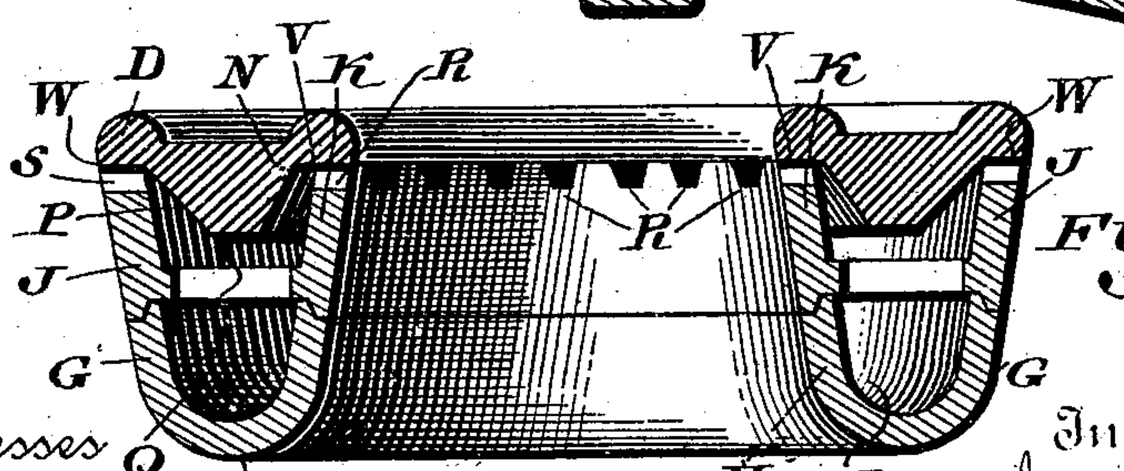


Fig. 4.



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BURNER FOR GAS-STOVES.

SPECIFICATION forming part of Letters Patent No. 551,715, dated December 17, 1895.

Application filed April 10, 1895. Serial No. 545,155. (No model.)

To all whom it may concern:

Be it known that I, ISAAC BROOKE, a citizen of the United States, residing at Royersford, in the county of Montgomery, State of Pennsylvania, have invented a new and useful Improvement in Burners for Gas-Stoves, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of a novel construction of burners for gas and other stoves, wherein the gas and air necessary to support combustion are properly commingled before ignition and afterward evenly and equally discharged from every portion of the burner, the effective operation of devices of this character being thereby greatly increased.

It also consists of a novel arrangement of ports in the diaphragm above the inlet-chamber, whereby the discharge of the gas is equalized throughout every portion of the burner.

It further consists of a novel construction of a plate supported by said burner, whose function is to further assist in equalizing the discharge of the gas from said burner.

It further consists of novel details of construction, all as will be hereinafter set forth.

Figure 1 represents a side elevation of a burner for gas and other stoves embodying my invention, the parts being shown in assembled position. Fig. 2 represents an inverted plan view of the same with the bottom section removed. Fig. 3 represents a section on line *x x*, Fig. 2. Fig. 4 represents a section on line *y y*, Fig. 2.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates a gas-burner, the same being made in sections in the present instance, and consisting of the upper and lower portions B and C and the top plate D.

E designates an inlet for the gas or other heating medium, which is preferably flaring, and discharges into the commingling-chamber F, which is surrounded by the walls G and H.

Upon said portion C is superimposed the upper portion B of the burner, which is provided with the walls J and K, which when assembled may form a continuation of the walls G and H, thereby forming the central chamber H′ which extends through the burner, the lower portion of said chamber H′ being provided with a diaphragm or partition L, which has therein the ports or outlets M and N for the heating medium, it being noticed that said ports M, which are located at the sides of the burner, are of considerably greater area than the ports N, which are diametrically opposite each other, and are located in line with the direction of the inlet for the gas, the advantages gained by the above arrangement of ports to be hereinafter made apparent.

The upper portions of the walls J and K of the upper chamber B are provided with the notches or serrations S and R, respectively, whereby the gas can be evenly discharged to all points within and without the burner.

The construction of the cap D will be best understood from Figs. 3 and 4, it being noticed that the said cap has ledges W and V, which rest upon the tops of the walls J and K, respectively, while from said ledges depend the sides N′ and P, it being noticed that the angle between the side N′ and its ledge V is less than the angle between the side P and its ledge W, whereby the base Q of said cap D, when the parts are assembled, will be nearer the inner wall K than the outer wall J, as is best seen in Fig. 2, said base being thus provided with an offset.

T designates ears by means of which the sections B and C are secured together, the burner proper being secured to any desired position by means of the flanges U.

The operation is as follows: The gas or other heating medium having been introduced through the inlet E draws in a certain amount of air and is forcibly discharged into the commingling-chamber F, where it expands and is thoroughly commingled, and since now the normal tendency would be for a greater volume of air and gas to be discharged from the points directly in line with the inlet—namely, through the ports N on the opposite side of the burner by reason of the contact of the incoming current against the walls of the same—these ports N are consequently made

of reduced area, so that the outlet will be somewhat obstructed at this, point and the gas will tend to be deflected to each side and will be discharged through the ports M M, which, it will be understood, are of larger area than said ports N.

It will be seen that by reason of the difference of diameter between the inner and outer walls J and K the normal tendency is for a greater volume of gas to discharge through the ports S than through the ports R, and in order to prevent this and to make the discharge through both of said ports approximately the same, and thus give a uniform and even flame, the sides N′ and P are given substantially the inclination shown, the bottom of the cap D thus assuming the function of a deflecting-ring, the portion Q being provided with an offset, or, in other words, moved out of the center of the chamber formed between the walls J and K, whereby it will be seen that the tendency will be to equalize the discharge of the gas and air, and so deflect a larger portion of the same through the ports R than would be the case if said bottom Q were centrally located.

It will thus be seen from the foregoing that by reason of the variations in area of the ports M and N and the offset which is given to the under side of the cap D the discharge from the ports R and S will be substantially equal and that a continuous, even, and uniform flame will be produced, which is especially desirable in devices of this character.

It will of course be understood that the number of the ports M and N may be varied and the relative areas of the same changed according to requirements, and that the parts constituting the burner may be assembled in other positions than that shown, without departing from the spirit of my invention, and I do not therefore desire to be limited in every instance to the exact constructions I have herein shown and described.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A burner for gas and other stoves consisting of a lower annular commingling chamber, an upper annular chamber with outlet ports, a diaphragm between said chambers having openings of different areas, and an inlet pipe for said chambers, the smaller of the openings in the diaphragm being in line with said inlet pipe, said parts being combined substantially as described.

2. A burner for gas and other stoves consisting of the lower portion C, having a commingling chamber and an inlet therefor, the upper portion B having walls, supported on the walls of the said lower portions, and provided with a diaphragm having the openings M and N of different areas therein, and the cap D with ledges resting on the walls of said portion B said openings N being on opposite sides of said diaphragm and in line with said inlet E, said parts being combined substantially as described.

3. In a burner for gas and other stoves, a lower commingling chamber, an inlet thereto, an upper chamber, a partition between said chamber having ports of different cross sectional area, the ports in line with the gas inlet being of less area than the other ports, a cap for said upper chamber having the bottom thereof provided with an offset, whereby substantially the same volume of the heating medium is discharged through the inner and outer walls of the burner, substantially as described.

4. In a burner for gas or other stoves, a ring having the ledges W and V, and the sides P and N′ depending therefrom, the angle between the portions N′ and V being less than the angle between the portions P and W, substantially as described.

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