

H. RUPPEL.
GAS BURNER.

APPLICATION FILED DEC. 5, 1908.

931,654.

Patented Aug. 17, 1909.

2 SHEETS—SHEET 1.

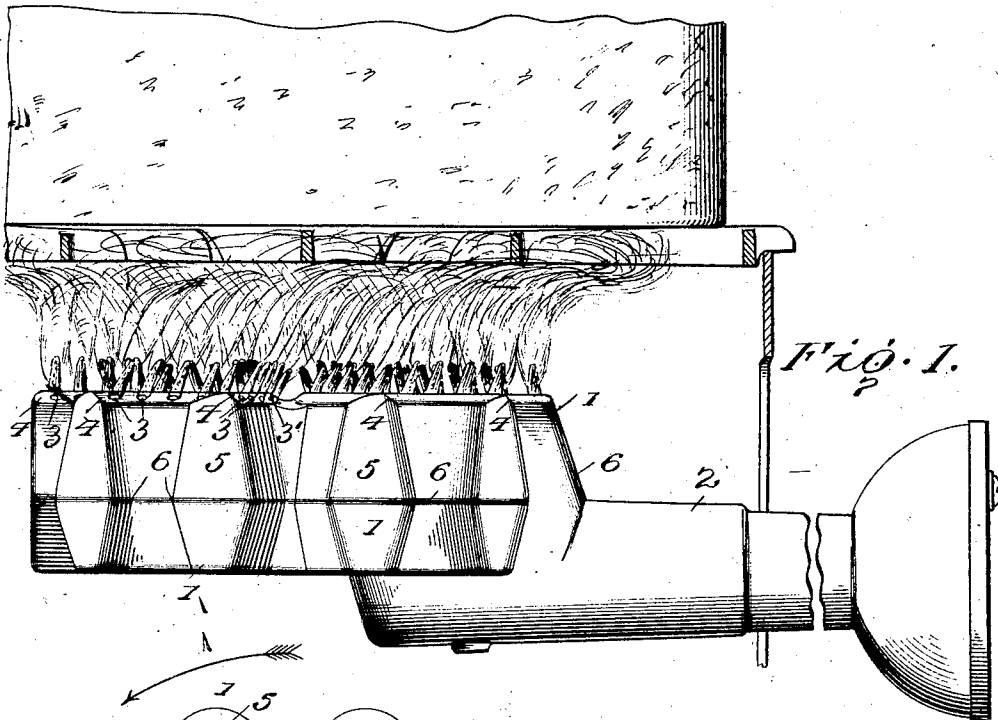


Fig. 1.

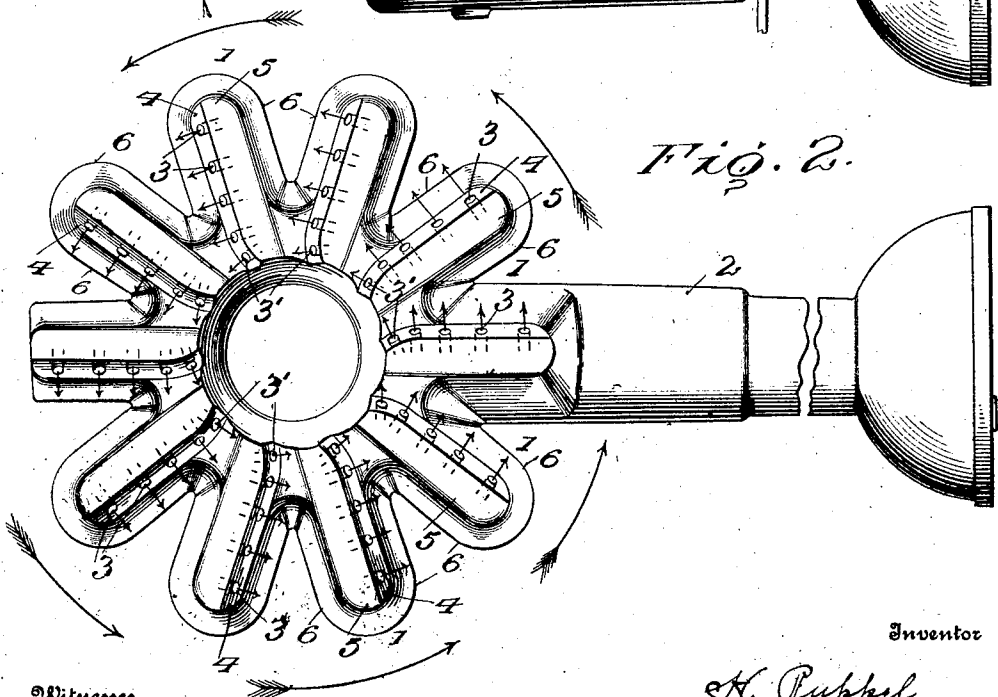


Fig. 2.

Witnesses

H. A. Williams
E. P. Wright, Jr.

Inventor

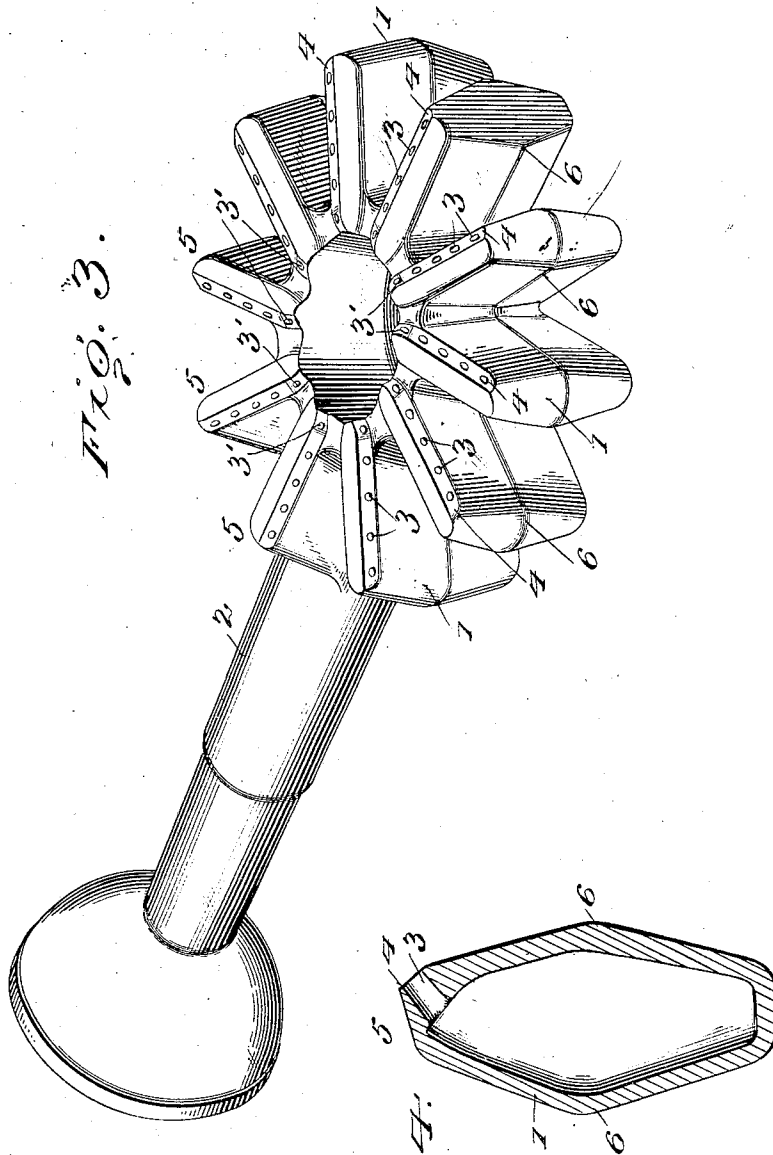
H. Ruppel

By

A. S. Patterson,
Attorney

931,654.

Patented Aug. 17, 1909.
2 SHEETS—SHEET 2.



Witnesses
W. A. Williams
C. P. Wright Jr.

Inventor
H. Ruppel
By A. S. Patterson
Attorney

UNITED STATES PATENT OFFICE.

HENRY RUPPEL, OF CLEVELAND, OHIO, ASSIGNOR TO AMERICAN STOVE COMPANY, OF ST. LOUIS, MISSOURI.

GAS-BURNER.

No. 931,654.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed December 5, 1908. Serial No. 466,137.

To all whom it may concern:

Be it known that I, HENRY RUPPEL, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Gas-Burners, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to improvements in gas burners, the object of which is to make a burner which produces a flame that has a continuous rotation below and against the bottom of the utensil, and because of this rotary movement, the flame is concentrated
15 under the utensil and prevented from spreading and escaping around the side of the utensil, whereby there is a continuously moving live flame engaging the under surface of the utensil, which increases its heating efficiency; in contra-distinction to the ordinary flame which strikes the bottom of the utensil at right angles thereto, which in practice rebounds and spreads around the
20 utensil, and thereby causes part of the flame to escape, and a proportionate loss in heating efficiency.

In the accompanying drawings, Figure 1, is a side elevation of a burner embodying the
30 present improvement, showing thereover a utensil, and illustrating the flame. Fig. 2, is a top plan view of the improved burner, the direction of the flame being illustrated. Fig. 3, is a perspective view of the improved
35 burner. Fig. 4, is a transverse, sectional view through one of the arms of the burner, and through one of the gas exit openings.

In carrying out the present invention, a burner of the "star" type is used, and as
40 here shown, consists of a plurality of hollow arms 1, which are in communication at their inner ends, and with the gas mixing tube 2, in the usual well known, and well understood way.

45 The present improvement consists in providing the arms with gas exits 3, all of which extend therefrom at an incline, the angle of incline being preferably about fifty-five (55°) degrees. This angular arrangement is specifically illustrated in Fig. 4, and from
50 which it will be seen that the angular direction is across the arm. All of the openings in the arms are arranged in the same horizontal plane, and all are inclined up-

ward at the same angle, which prevents the
55 necessity of any flame deflecting surfaces to absorb part of the heat, and the exit of each jet of flame being the same distance from the utensil, each jet delivers the same amount of heat to the bottom of the utensil, thereby
60 delivering a uniform heat to and throughout the entire bottom of the utensil. This makes an arrangement of flame jets all of which extend in the same direction as re-
65 spects a circle around the burner, and in practice produces a rotary flame under and against the bottom of the utensil, and this circular action tends to, and does largely concentrate the flame against the bottom of
70 the utensil, and prevents it from escaping around it as it does with a burner having the usual perpendicular gas escape openings. This action is found in practice to increase the heating efficiency of the burner, and to
75 prevent the over-heating of the handles of the utensil, and indeed prevents molting them loose as often happens with the ordinary burner.

In order to produce the rotary action of the flame it is essential that all the flames
80 must extend from the arms 1, in the same direction as respects the arc of a circle around the burner, as illustrated in Fig. 2.

Referring to Fig. 2, it will be seen that taking any one arm of the burner, the flames
85 issue therefrom in a direction toward a succeeding arm, and in a direction away from a preceding arm, all of them extending in the same general circular direction as respects the burner. This arrangement sets up a ro-
90 tary motion of the flame where they mingle under and against the bottom of the utensil.

It is known that a moving flame (such as a blow pipe action) is hotter than a comparatively quiet flame, and this arrangement
95 sets up a rapid rotary flame under and against the bottom of the utensil, with its consequent heat generating advantages, in addition to holding the flame thereunder and preventing it from escaping from
100 around the utensil.

In the ordinary burner with perpendicular gas escape openings, the flame strikes the bottom of the utensil and has a tendency to
10 rebound and escape, whereas with this improved arrangement the rebounding does not occur, because the flames strike the bottom of the utensil at angles all of which are

in the same general circular direction, setting up a rotary flame which travels around in contact with and clings to the bottom.

As to the specific construction of the outer surface of the arms 1, they preferably have the inclined surfaces 4 from which the openings 3 extend at about right angles to the surfaces, and back of the surfaces 4 are the inclined surfaces 5. The outside cross-sectional shape preferred is with the upper walls and lower outer walls contracting from an intermediate point 6.

The innermost openings 3' are inclined somewhat toward the center of the burner, as well as upward, and are located as shown somewhat back of the line of the other openings in the respective arms 1.

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

1. An improved gas burner having a plurality of radially-arranged arms, each arm having a plurality of small gas exit openings inclined through the top wall thereof and extending in the same rotary direction, all of the openings arranged in the same horizontal plane to deliver a uniform heat at a horizontal plane thereabove, and all having the same upward inclination for the purpose described.

2. An improved gas burner having a plurality of radially-arranged arms, each arm

having a plurality of inclined gas exit openings extending in the same rotary direction, all of which are arranged in the same horizontal plane to deliver a uniform heat at a horizontal plane thereabove, the inner openings of each arm inclined inwardly with respect to the other openings in the arm for the purpose described.

3. An improved gas burner having a plurality of small gas exit openings inclined through the top wall thereof, said openings arranged in successive radial rows around the center of the burner, the openings of each row extending in the same rotary direction as the openings of all the other rows for the purpose described, and all of the openings having the same upward inclination.

4. An improved gas burner comprising a body portion having a plurality of small gas exit openings inclined through the top wall thereof, all of the openings inclined in the same rotary direction for the purpose described, and all of the openings having substantially the same upward inclination for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY RUPPEL.

Witnesses:

J. E. GILBERT,

CHAS. R. CARRUTH.