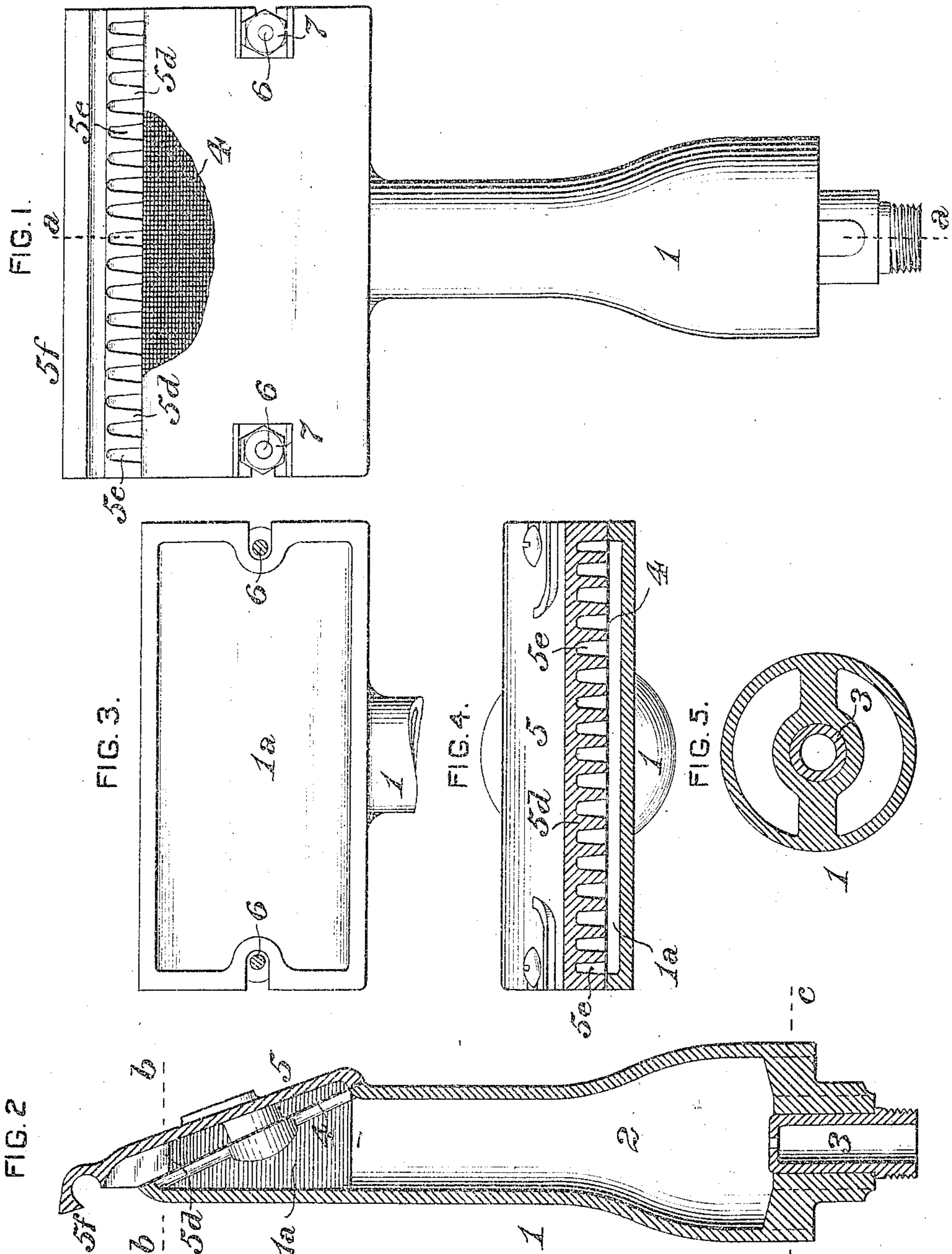


No. 875,218.

PATENTED DEC. 31, 1907.

E. RUUD.
GAS BURNER.

APPLICATION FILED MAY 9, 1907.



WITNESSES
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UNITED STATES PATENT OFFICE.

EDWIN RUUD, OF PITTSBURG, PENNSYLVANIA.

GAS-BURNER.

No. 875,218.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed May 9, 1907. Serial No. 372,809.

To all whom it may concern:

Be it known that I, EDWIN RUUD, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Gas-Burners, of which improvement the following is a specification.

My present invention relates to gas burners of the type set forth in Letters Patent of the United States No. 761,409, granted and issued to me under date of May 31, 1904, and its object is to more effectually prevent "flashing" or "back firing", as well as to simplify and economize the construction of the appliance.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings: Figure 1 is a front view, in elevation, of a gas burner illustrating an embodiment of my invention, a portion of the wall of the discharge chamber being broken away to show the burner plate; Fig. 2, a vertical section through the same, on the line *a a* of Fig. 1; Fig. 3, a front view of the upper portion of the burner, with the cap plate removed; Fig. 4, a horizontal section, on the line *b b* of Fig. 2; and, Fig. 5, a similar section, on the line *c c* of Fig. 2.

My invention is herein, as in Letters Patent No. 761,409 aforesaid, shown as applied in connection with a gas and air mixer of the ordinary type, the same consisting of a tubular body or shell, 1, which surrounds a supply passage, 2, for gas and air, and is flared or conically enlarged at its lower end, which is open for the reception of air, into which a gas supply pipe, 3, projects for a short distance. The upper portion of the body, 1, opens directly into a laterally extended or expanded discharge chamber, 1^a, which is preferably, as shown, of rectangular section, and is entirely open at its front, which is inclined relatively to the body, as shown in Fig. 2.

A burner plate, 4, which may be either of perforated metal or wire gauze, is fitted over the inclined open front of the discharge chamber, and is held thereon by a cap plate, 5, which is of similar contour to the discharge chamber and is flanged on its edges which abut against the burner plate, so as to be separated therefrom by an intervening space which is deeper at top than at bottom and forming a narrow and elongated burner opening, as shown in Figs. 1, 2 and 4. The

cap plate is secured removably to the discharge chamber by bolts, 6, and nuts, 7.

A plurality of vertical ribs or partitions, 5^d, is cast on the inner side of the cap plate, 5, adjacent to its top, which extends above that of the discharge chamber, the spaces between said ribs constituting a plurality of separate and independent discharge channels, 5^e, said channels gradually increasing in cross-section and disposed throughout the width of the cap plate, and open at each of their ends, through which channels the mixture of gas and air issuing from the discharge chamber passes to the atmosphere. (See Figs. 3 and 4.) A curved lip, 5^f, extends across the top of the cap plate, above the discharge channels, projecting over the joint between the discharge chamber, and burner plate and serves to prevent the access of water to said channels and joint. It will be observed that the form and relation of the ribs, 5^d, and lip, 5^f, are such that they may be cast integral with the cap plate, without necessitating the use of a core or of machine work on the latter after being cast.

In operation, combustion of the mixture of gas and air which enters the discharge chamber, 1^a, through the supply passage, 2, is maintained near the openings or perforations in the upper portion of the burner plate, 4, and the flame is thrown out, in a plurality of independent jets, through the discharge channels 5^e. It has been found in practice that by the provision of independent channels, in lieu of the single discharge opening extending entirely across the cap plate which is set forth in Patent No. 761,409, the liability of the mixture to burn down into the space within the cap plate and on the burner plate, is substantially eliminated. The location of the burner plate joint below the lip, 5^f, of the cap plate, enables the rear guard plate of said patent to be dispensed with, and correspondingly reduces the cost of casting said plate.

I claim as my invention and desire to secure by Letters Patent:

1. The combination, with a gas and air mixing chamber, of an expanded discharge chamber open directly to the mixing chamber and having an open front, a foraminous burner plate extending across the front of said discharge chamber, a cap plate secured to the discharge chamber in front of the burner plate and forming therewith an elongated narrow burner opening, said cap plate

having formed on its inner side a plurality of separate and independent discharge channels at and near its top and leading to the outer end of the burner opening.

5 2. The combination, with a gas and air mixing chamber, of an expanded discharge chamber open directly to the mixing chamber and having an open front, a foraminous burner plate extending across the front of
10 said discharge chamber, a cap plate secured to the discharge chamber in front of the burner plate and forming therewith an elongated narrow burner opening, said cap plate having a lip at its top which projects over the
15 burner opening and the joint between the discharge chamber and burner plate and prevents access of water to the inside of the burner opening.

3. The combination, with a gas and air
20 mixing chamber, of an expanded discharge chamber open directly to the mixing chamber and having an open front, a foraminous burner plate extending across the front of said discharge chamber, a cap plate secured
25 to the discharge chamber in front of the burner plate and forming therewith an elongated narrow burner opening said cap plate having a lip at its top which projects over the burner opening and the joint between the
30 discharge chamber and burner plate, said cap plate provided with a plurality of separate and independent discharge channels between said lip and the burner plate and extending to the outer edge of burner opening.

35 4. The combination, with a gas and air mixing chamber, of an expanded discharge chamber opening directly to the mixing chamber and having an open front, a forami-

nous burner plate extending across the front of said discharge chamber, a cap plate cover- 40 ing the front of said discharge chamber and separated therefrom by an intervening space and forming therewith an elongated narrow burner opening, said plate having a plurality of separated ribs or projections extending 45 from its inner face to the burner plate at and near the top thereof, means projecting over and shielding the burner opening and connections by which the burner plate is clamped in position between the discharge chamber 50 and the ribs of the cap plate.

5. The combination, with a gas and air mixing chamber, of an expanded discharge chamber open directly to the mixing chamber and having an inclined open front, a fo- 55 raminous burner plate extending across and inclined correspondingly with the front of said discharge chamber, a cap plate covering the front of said discharge chamber, and separated therefrom by an intervening space 60 and forming therewith an elongated narrow burner opening, said plate having a plurality of separated ribs or partitions extending from its inner face to the burner plate and a lip at its top which projects over the joint 65 between the burner plate and the inclined face of the discharge chamber and prevents access of water to the inside of the burner opening, and connections by which the burner plate is clamped in position between 70 the discharge chamber and the cap plate.

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Witnesses:

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