

Nov. 25, 1930.

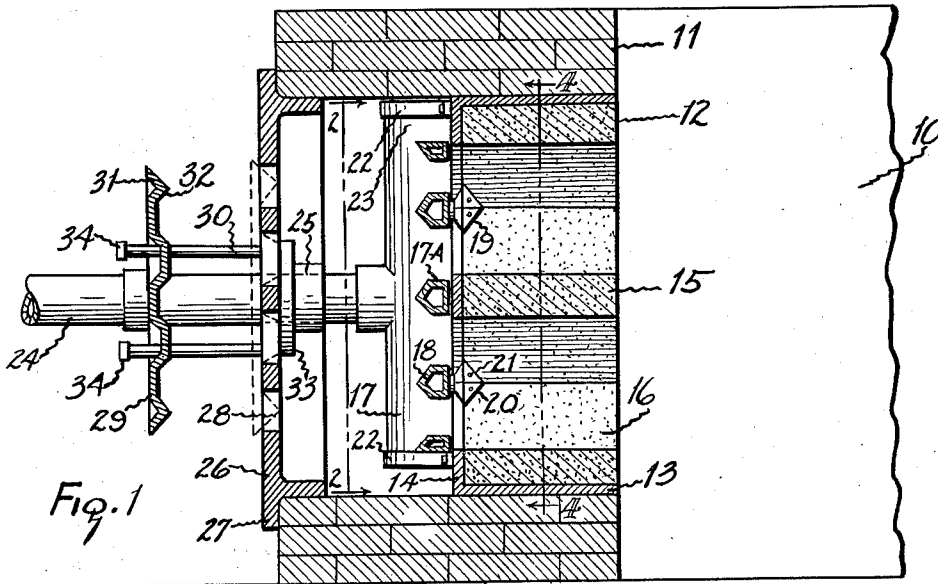
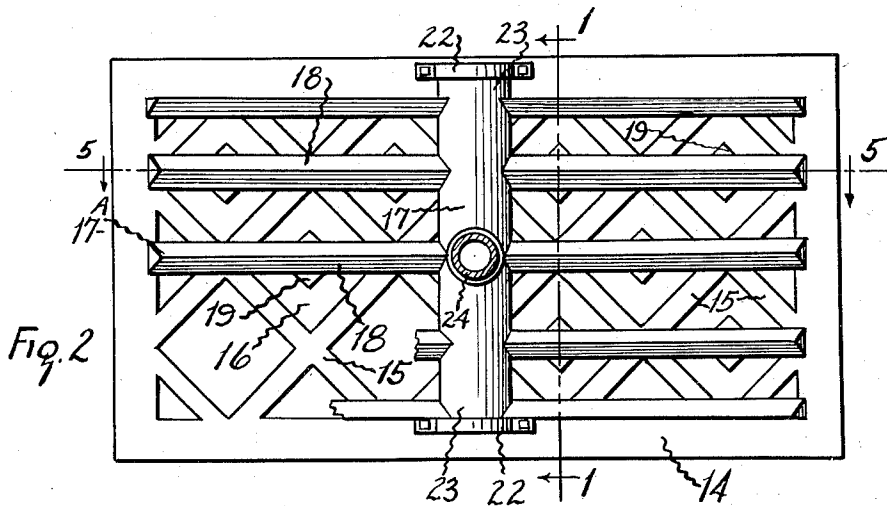
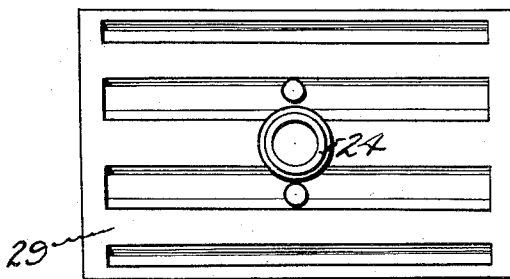
J. L. GIACOMINO

1,782,683

GAS BURNER

Filed Nov. 22, 1928

4 Sheets-Sheet 1



INVENTOR
J.L. Giacomino
BY *Jack Anthony*
ATTORNEY

Nov. 25, 1930.

J. L. GIACOMINO

1,782,683

GAS BURNER

Filed Nov. 22, 1928

4 Sheets-Sheet 2

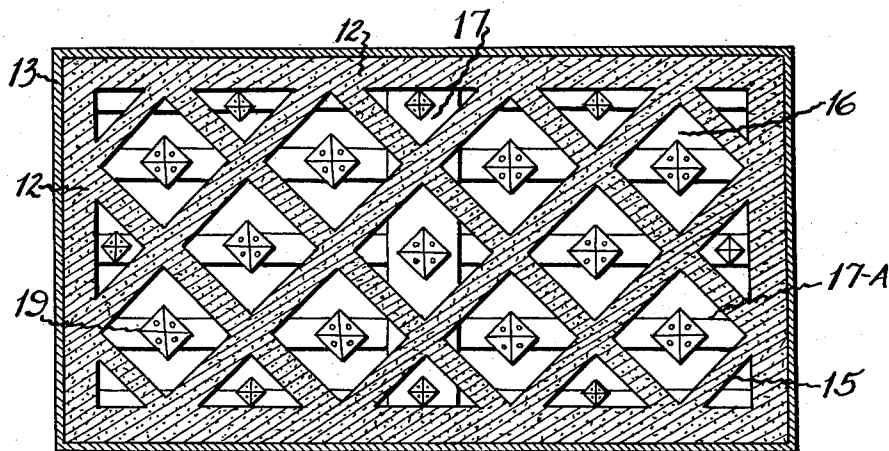


Fig. 4

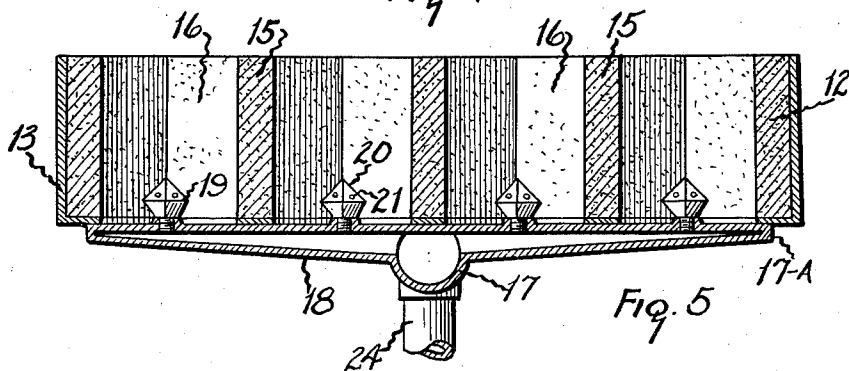


Fig. 5

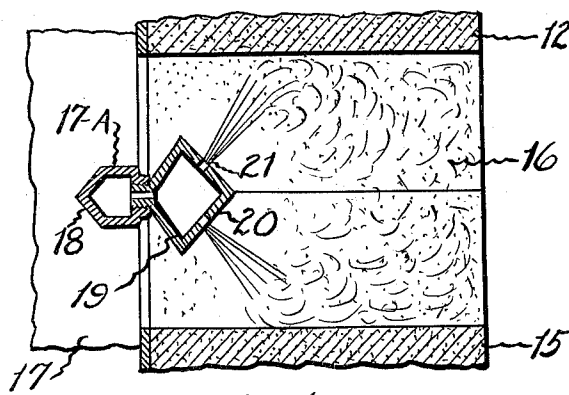


Fig. 6

INVENTOR
J. L. Giacomino
BY *Jack H. Shley*
ATTORNEY

Nov. 25, 1930.

J. L. GIACOMINO

1,782,683

GAS BURNER

Filed Nov. 22, 1928

4 Sheets-Sheet 3

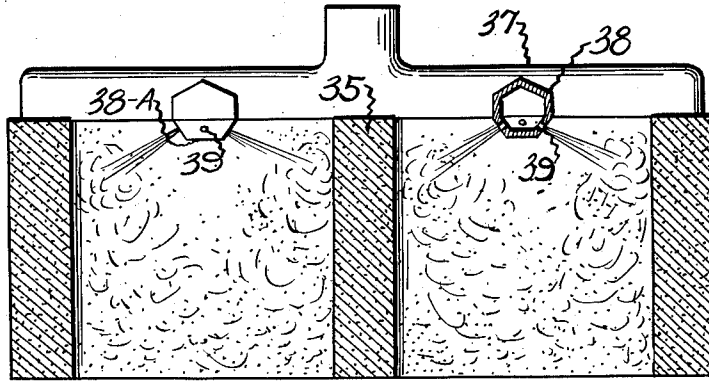


Fig. 8

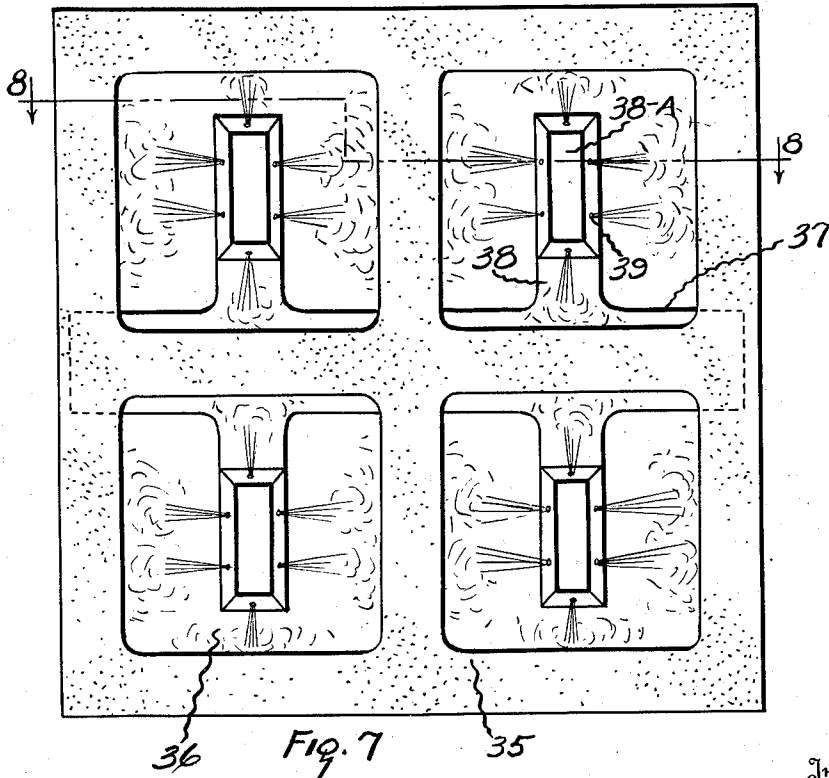


Fig. 7

Inventor

J. L. Giacomino

By

Jack H. H. H.

Attorney

Nov. 25, 1930.

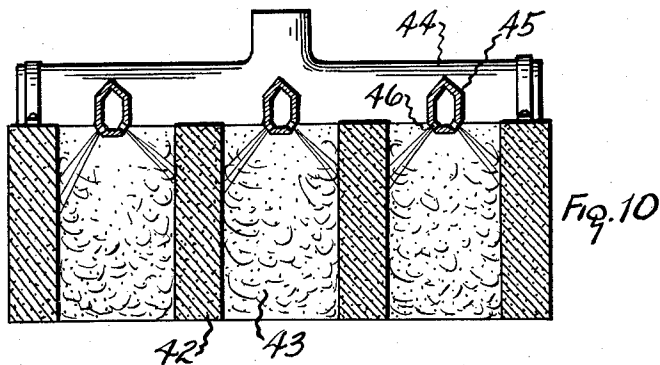
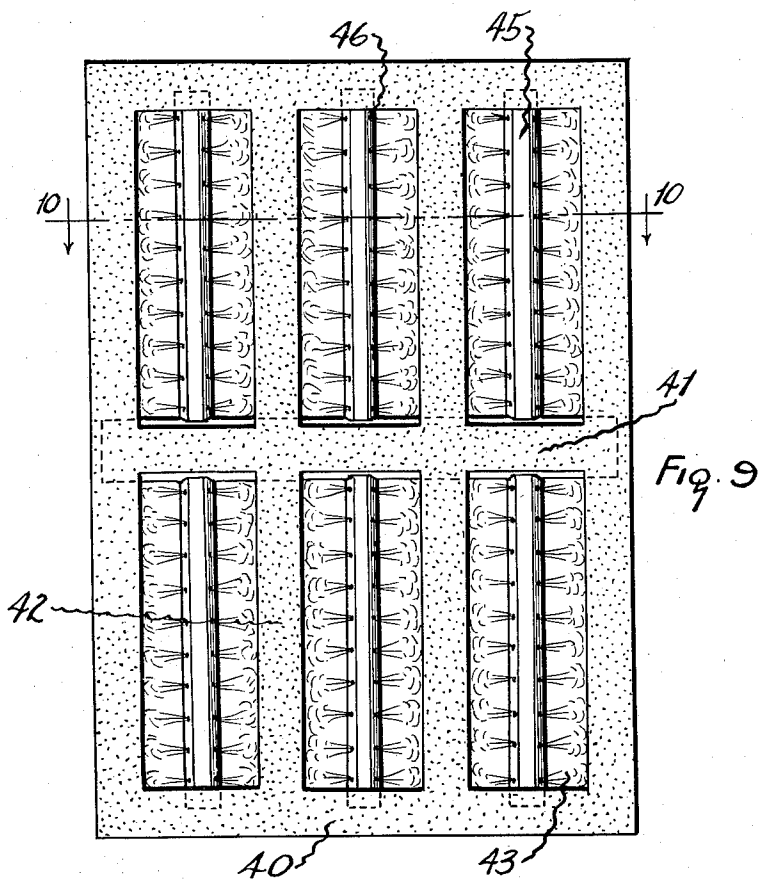
J. L. GIACOMINO

1,782,683

GAS BURNER

Filed Nov. 22, 1928

4 Sheets-Sheet 4



Inventor

J. L. Giacomino

384

Jack A. Hely
Attorney

UNITED STATES PATENT OFFICE

JOSEPH L. GIACOMINO, OF NEW ORLEANS, LOUISIANA, ASSIGNOR OF ONE HUNDRED PER CENT TO CARL W. GIBSON, OF PARISH OF ORLEANS, LOUISIANA

GAS BURNER

Application filed November 22, 1928. Serial No. 321,120.

This invention relates to a gas burner, and particularly to a construction adapted for use in gas furnaces wherein the combustible mixture is ignited at a refractory inlet baffle.

5 With this type of burner it is of particular importance to avoid a stratification of the gas and air which results in an incomplete mixture at the point of ignition materially reducing the effective heat of the flame. 10 Further, unless the air admixture is effected in a highly heated zone, the expansion and regenerative effects upon the constituents are lost. Again, if the air be admitted to the burner through an opening common to 15 all the baffle ports there is no concentration or draft in alinement with such ports which will effectively produce a mixture with the gas discharged under pressure at the burner.

To avoid these objections and render the 20 burner more efficient, I have formed the burner with a central head and lateral branches having burner tips disposed centrally of the ports of the refractory baffle and provided with orifices arranged to pro- 25 ject the gas jet into contact with all walls of the port which results in a rebounding movement of the gas causing the same to be broken up and thoroughly mixed with the admitted air. By producing the mixture entirely 30 within the ports of the baffle I utilize the high temperature thereof to expand or regenerate both the air and gas and as the air completely surrounds the jet the most desirable admixture is secured.

35 I have also combined with the burner a damper plate having air apertures alined with the ports of the baffle and controlled by a door formed with inclined projections co- 40 operating with said apertures, so that the inclined faces direct the air into the apertures and produce a direct draft into the mixing ports.

45 The invention has for an object to provide a novel and improved gas burner combined with a refractory baffle having a plurality of ports and comprising a head having lateral branches with discharge means disposed substantially centrally of the ports 50 and formed with jet orifices arranged to pro-

ject a jet into contact with the walls of said ports.

A further object of the invention is to present a new construction of baffle having angular ports combined with a burner having 55 pyramidal discharge tips formed with orifices to project a gas jet entirely within and upon the walls of the ports.

Another object of the invention is to provide a novel air damper comprising a plate 60 having apertures alined with the ports of a burner baffle and a cooperating register door provided with projections opposite said plate with inclined walls to seat in the apertures thereof. 35

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawings:

Fig. 1 is a vertical section on line 1—1 of Fig. 2, 70

Fig. 2 is a similar view on line 2—2 of Fig. 1 with parts broken away,

Fig. 3 is an elevation of the register door, 75

Fig. 4 is a section on line 4—4 of Fig. 1,

Fig. 5 is a like view on line 5—5 of Fig. 2,

Fig. 6 is a detail section of one burner tip and baffle port,

Fig. 7 is an elevation of a modified form of 80 baffle and burner,

Fig. 8 is a section on line 8—8 of Fig. 7,

Fig. 9 is an elevation of a further modification of the baffle and burner, and

Fig. 10 is a section on line 10—10 of Fig. 9. 85

Like numerals of reference refer to like parts in the several figures of the drawings.

In the application of the invention shown in Figs. 1 to 6, the numeral 10 designates a furnace or chamber to be heated which may 90 be of any desired construction. The wall 11 thereof is provided with the usual opening within which is disposed a refractory baffle 12 carried by a metal frame 13 having a front wall 14. The baffle in this form of the in- 95 vention comprises oppositely arranged diagonal partitions 15 forming a plurality of staggered rectangular ports 16.

Cooperating with this baffle is a burner head 17 having at each side a series of lat- 100

eral horizontal branches 17^a formed with oppositely inclined front walls 18 to prevent resistance to the inflowing air. The face of these branches next the baffle is provided with burner tips 19 which may be integral or threaded therein, as shown in Fig. 6. The tips are formed with pyramidal faces 20 having jet orifices 21 disposed to direct a gas jet into contact with the several walls of the ports. These tips are arranged substantially centrally of the baffle ports so that they are surrounded by the inflowing air which is thus brought into intimate contact with the sprayed gas and thoroughly mixed therewith in the subsequent rebounding movement of the mixture passing through the ports.

The burner may be mounted in any preferred manner, for instance, by straps 22 embracing the ends 23 of the head and secured to the front wall 14 of the frame. By the removal of the lower strap the head may be lowered from the upper strap and readily removed. The burner is further supported by its intake pipe 24 which passes through a sleeve 25 on the damper plate 26 mounted in the opening in the wall 11 by a flange 27.

This plate 26 is formed with apertures 28 aligned with the ports 16 of the baffle, and a register door 29 is slidably mounted upon guides 30 and provided with projections 31 having inclined walls 32 to seat in said apertures when the air inlet is closed. When partially open these inclined walls direct the air into the apertures and assist in producing a direct draft through the baffle ports, as indicated by dotted lines in Fig. 1. The guides 30 may be mounted in the boss 33 on the plate 26 and provided with stops 34 at their free ends to limit the movement of the door away from the damper plate.

The modified form of the invention shown by Figs. 7 and 8 simplifies and economizes the manufacture of the burner, and the baffle 35 therein is provided with rectangular ports 36, but they are not staggered as in Fig. 4. The burner head 37 has lateral branches 38 formed with integral pyramidal tips 38^a disposed at the center of the ports and provided with orifices 39 to direct a gas jet into contact with all the walls of the port. The mounting of the burner and the construction of the air inlet damper may be similar to that before described.

In the further modification shown by Figs. 9 and 10 the baffle 40 has a vertical partition 41 and horizontal partitions 42 forming elongated ports 43. The burner head 44 has branches 45 formed with orifices 46 disposed to project a jet of gas into direct contact with the walls of the port.

The disposition of the burner orifices to project a gas jet into contact with the wall of the baffle port causes the admixture with the air to occur within a highly heated zone and the mixture to be forced into the angles of the

ports which results in a uniform feed and mixture for the entire area of the port. The gas from the centrally disposed tip offers a resistance field to the inflowing air but being disposed toward the port outlet draws the air into the gas field and thus produces the most desirable mixture which is further effected by the reflex movement of the mixture through the baffle port. The register door permits an accurate control of the air admitted to the burner and its direction to effect a draft toward the burner and port.

The specific construction of the several parts has been shown and described, but the invention is not confined thereto, as changes and alteration may be made without departing from the spirit of the invention as recited in the following claims.

What I claim, is:

1. In a gas burner, a refractory baffle formed with a plurality of angular ports, a burner head having lateral branches provided with gas discharge means located substantially centrally within the ports and having angularly disposed orificed faces to project a gas jet into contact with the walls of said ports, and means for supplying air to said discharge means.

2. In a gas burner, a refractory baffle formed with a plurality of angular ports, a burner head having lateral branches, and pyramidal discharge tips located substantially centrally of the ports and having orifices to project a jet into contact with the walls thereof.

3. In a gas burner, a refractory baffle formed with a plurality of ports, and a burner having gas discharge tips located substantially centrally of the ports directly adjacent the inlet thereto, said discharge tips being provided with opposite walls having orifices to project a gas jet angularly into contact with the walls of the ports.

4. In a gas burner, a refractory baffle formed with a plurality of rectangular ports, a central burner head having opposite lateral branches, and pyramidal discharge tips located substantially centrally of the ports and having orifices to project jets into contact with all walls of the ports.

5. In a gas burner, a refractory baffle having angular ports, a frame surrounding said baffle and having a front wall, a burner head having extended ends and discharge branches with jets substantially centrally of said ports and having angular faces orificed opposite all walls of the ports, and straps embracing the extended ends of said head and secured to said front wall.

6. In a gas burner, a refractory baffle having an angular port, and a burner provided with a pyramidal discharge jet with orificed walls corresponding to those of the port and disposed at an angle thereto.

7. In a gas burner, the combination with

a refractory baffle having ports and a gas feed cooperating therewith, of a damper plate at the inlet end of the ports having air apertures, and a sliding door having its face next said plate provided with parallel elongated projections formed with inclined walls to cooperate with said apertures.

8. In a gas burner, a refractory baffle having oppositely inclined partitions to form a series of staggered angular ports, a burner head having branches provided with discharge jets extended into said ports and formed with oppositely inclined faces directed toward the angular walls of the ports, and damper means for directing a draft of air into alinement with said ports.

In testimony whereof I affix my signature.
JOSEPH L. GIACOMINO.