

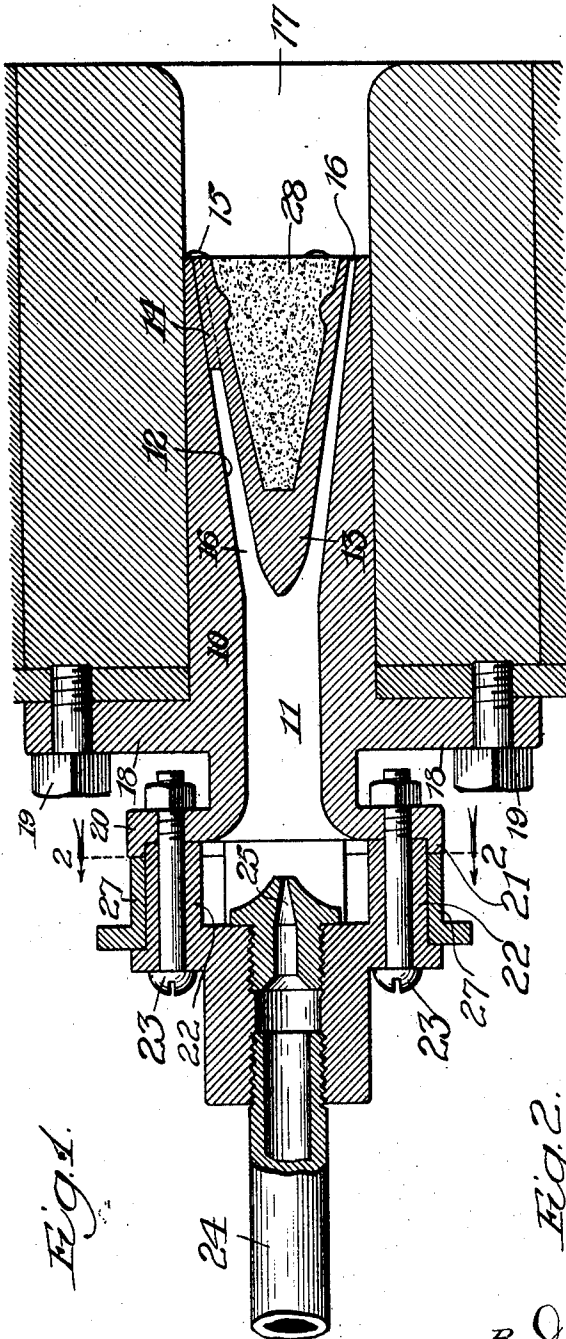
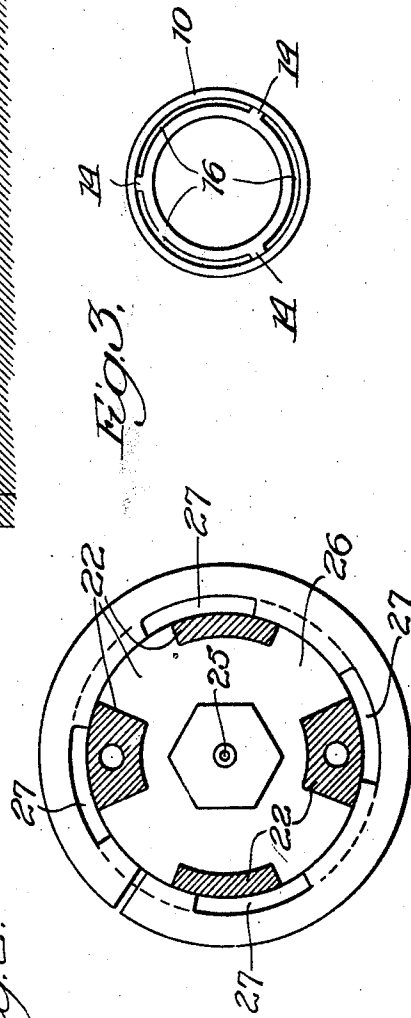
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C. J. LEVEY ET AL

1,596,667

GAS BURNER

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UNITED STATES PATENT OFFICE.

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NOIS.

GAS BURNER.

Application filed September 2, 1925. Serial No. 54,084.

This invention relates to gas burners for use in heating furnaces and the like and is fully described in the following specification and shown in the accompanying drawings, in which:

Figure 1 is a longitudinal section through the furnace;

Fig. 2 is a sectional view on the line 2—2 of Fig. 1 with the furnace tube removed; and

Fig. 3 is an elevation of the delivery of the tube.

The burner comprises a body member 10 having a straight tubular portion 11 which terminates in a flaring portion 12. A conical member 13 is secured in the flaring portion by means of a plurality of separating legs 14 which are preferably welded at 15 to the wall of the flaring portion.

The conical member 13 is so proportioned that the cross sectional area of the annular space 16 is uniform throughout and equal to the cross sectional area of the straight tubular portion 11.

The body 10 is adapted to be inserted in an opening 17 inside the furnace and has a flange 18 through which bolts 19 may be inserted to secure the body to the furnace. The second flange 20 is formed on the outer end of the body and has an annular lip 21 which is adapted to receive legs of the spider 22 which is secured thereto by means of bolts 23. The outer end of the spider is threaded to receive a gas pipe 24 and the inner end is threaded to receive the nozzle 25.

The legs of the spider are spaced as shown in Fig. 2 so as to leave openings 26 through which atmosphere may be aspirated into the tube 11 by gas passing through the nozzle 25. These openings are regulated by means of the shutter 27 which is rotatably mounted around the legs of the spider 22. The pressure of the gas at the nozzle 25 is regulated by means of a valve, not shown.

Thus it will be seen that upon introducing a combustible gas through the tube 24, this gas passing through the nozzle 25 will act in a well known manner to aspirate air through the openings 26, this gas and air

mixing in the tube 11 and passing into the furnace. For maximum efficiency the mixture of gas and air is driven through the burner at substantially uniform rate of speed throughout and this is accomplished as previously stated by using a center axially located conoidal member 13 which is so proportioned as to provide a passage 16 of uniform cross section throughout.

The velocity of the combustible mixture is so regulated as to keep it well above its rate of flame propagation so that a fairly wide range of speeds may be permissible, thereby enabling the burner to be used with various degrees of gas pressure. Thus, the danger of the flame flashing back into the mixing tube of the burner is greatly lessened and the danger is also reduced by the fact that at the delivery end the passage is quite narrow thereby tending to keep the gaseous mixture well below the combustible temperature until after it has passed into the furnace. The outer end of the conoidal member 13 is preferably made hollow and filled with a refractory material 28 which further reduces the tendency of the cone 13 to absorb heat and transfer it to the incoming combustible mixture.

While we have shown and described but a single embodiment of this invention, it is to be understood that it is capable of many modifications. Changes therefore in the construction and arrangement may be made which do not depart from the spirit and scope of the invention as disclosed in the appended claims.

We claim:

1. A gas burner comprising a burner tube, an aspirating jet adapted to deliver thereto, a conoidal member disposed in said tube forwardly of the jet, the space around the conoidal member being annular and of substantially constant cross sectional area throughout the length of the conoidal member to enable the fuel mixture to be driven through the burner at substantially the same speed throughout to avoid "flashing back" of the flame.

2. A gas burner comprising a burner tube, an aspirating jet adapted to deliver there-

to, and a conoidal member disposed in said tube forwardly of the jet to provide a throat between them, the space around the conoidal member being annular, said throat and said space being of substantially constant cross sectional area throughout, to enable the fuel mixture to be driven through the burner at substantially the same speed throughout to avoid "flashing back" of the flame.

In testimony whereof we have hereunto set our hands and seals this 28th day of August, 1925.

CLARENCE J. LEVEY.
JOHN ZANDER.