May 11 1926. 1,584,210

G. H. BRUNOW

BURNER

Filed Sept. 7, 1923

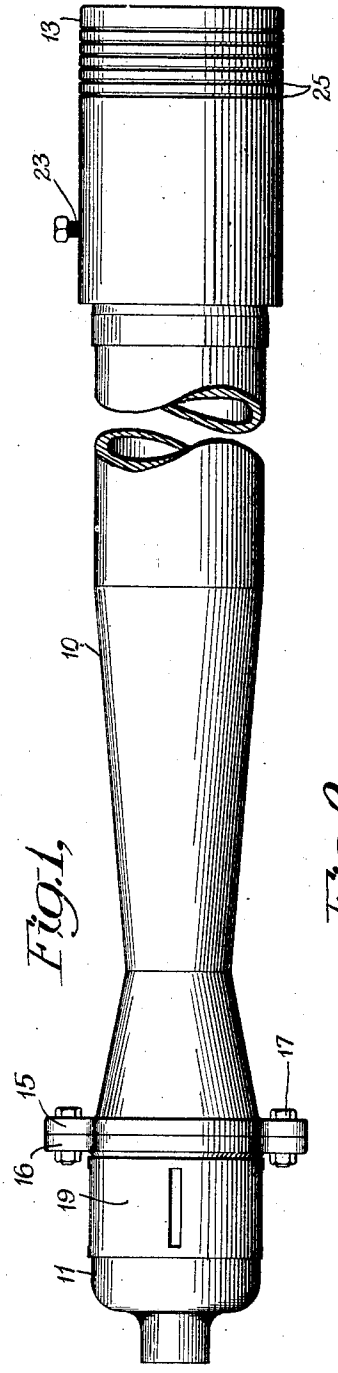


Fig.1.

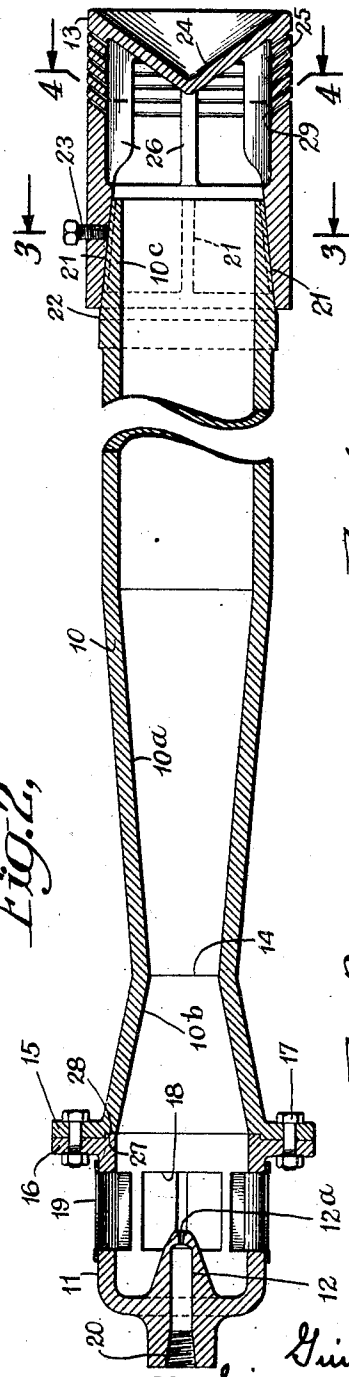


Fig.2.

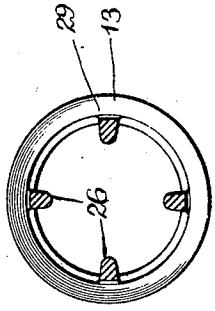


Fig.4.

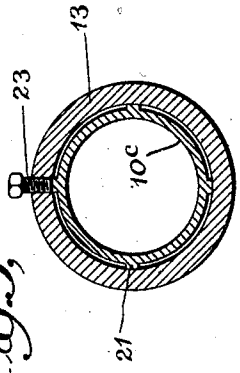


Fig.3.

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UNITED STATES PATENT OFFICE.

GUINTHER H. BRUNOW, OF PORT ARTHUR, TEXAS, ASSIGNOR TO THE TEXAS COMPANY, OF NEW YORK, N. Y., A CORPORATION OF TEXAS.

BURNER.

Application filed September 7, 1923. Serial No. 661,352.

This invention relates to burners for gaseous fuel and particularly to improvements in burners of the same general type as those described in the pending application of George D. White, Serial No. 627,589, filed March 26, 1923.

One object of the invention is to prevent the destruction of the flame ends of burners by reason of the intense heat to which the ends are subjected.

Another object of the invention is to properly align the nozzle with the throat of the burner so that the fuel jet will contact with the throat to produce the maximum suction effect for drawing air into the burner.

Other objects and advantages of the invention will appear as the description thereof proceeds.

The invention has particular reference to certain novel features of construction and arrangement of parts, an example of which is illustrated in the accompanying drawings in which,

Figure 1 is a longitudinal elevation of a device constructed in accordance with the invention and constituting an embodiment thereof.

Figure 2 is a view in longitudinal section of the same.

Figure 3 is a sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a sectional view taken on the line 4—4 of Figure 2.

Referring to the drawing the burner comprises in general a tube 10, an air mixing chamber 11, a fuel nozzle 12, and a burner cap or head 13.

Considering the invention in greater detail the tube 10 is open at both ends and formed with opposed flaring walls, 10^a and 10^b, which converge to form a throat 14 of restricted diameter. The wall 10^b terminates in an outwardly projecting flange 15. The air mixing chamber 11 is provided with an outwardly projecting flange 16 adapted to be secured to the flange 15 by means of bolts 17. The inner periphery of the flange 16 is provided with an annular shoulder 27 which is adapted to be seated in a countersunk peripheral groove 28 in the outer face of the flange 15. This interfitting or centering connection provides a secure and gas tight connection between the air mixing chamber 11 and the tube 10 and also insures the desired alignment of the nozzle 12.

The air mixing chamber 11 is substantially cylindrical in form and in the side walls thereof a plurality of air inlet openings 18 are provided. A movable sleeve or shutter 19 is disposed on the chambered member 11 outwardly of the openings 18, and is adapted to regulate the openings and thus control the admission of air to the burner.

The fuel nozzle 12 is disposed in the air mixing chamber and includes a discharge orifice 12^a and an inlet port 20 which is preferably threaded for the attachment of a fuel supply hose or pipe. In order to obtain the minimum efficiency of the burner in operation the orifice 12^a should be so positioned with respect to the air inlet ports 18 and the throat 14 that the outer edge of the jet of fluid discharged from the orifice 12^a will just come in contact with the periphery of the throat 14.

One end of the tube 10 is exteriorly tapered and a portion thereof is cut away in such a manner as to provide a plurality of longitudinally extending raised portions or ribs 21. At the inner ends of the ribs there is a tapered annular shoulder 22 having a bevelled portion in the same plane with the surfaces of the several ribs. The burner cap 13 is internally tapered throughout a portion of its length for engagement with the tapered end of the burner tube. In operation the burner cap 13 is placed on the end 10^c of the burner tube and is securely seated upon the longitudinal ribs and the peripheral shoulder 22 so as to effect a tight closure between the tube and the cap. The rib construction is for the purpose of allowing for contraction and expansion. The burner cap 13 is secured to the tube 10 by a screw 23.

Burner ports 25 in the form of inclined slots extend entirely around the cap 13 with longitudinal ribs 26 provided to hold the parts together. The end 24 of the burner cap 13 is of conical or dished construction so that this portion of the cap is considerably removed from the direct action of the flames issuing from the burner ports 25. The inclination of the conical or dished wall is substantially the same as and in a plane parallel to those of the several inclined slots. Thus the gases passing through the

tube 10 are deflected by the conical shaped end and directed outwardly through the open slots. The end 24 is constructed of thinner metal than the side walls of the cap 13 so that there will be as small a quantity of metal as possible adjacent the end of the burner in order that as little heat as possible will be absorbed and so that the end will be effectively cooled by the gases passing through the tube and out through the ports 25. Furthermore, the construction of the burner cap 13 with a convex or dish shaped end makes it practically impossible for any gas to collect at the outer end of the burner, as all of the gas upon coming in contact with the end of the burner is directed outwardly through the slots 25.

It is likewise desirable to provide small cut-out portions or spaces, as 29, in the ribs 26 adjacent the burner openings 25 so that the streams of gas passing on either side of the ribs can meet and thus prevent the entry of oxygen through the openings so that combustion will not take place within the burner tip adjacent the ribs.

Although a preferred illustrative embodiment of the present invention has been described, it should be understood that the inventive idea upon which the invention is based is broader than the particular form set forth, and no limitations are intended other than those imposed by the appended claims.

What I claim is,

1. In a gas burner, a tube having one end thereof externally tapered, a plurality of longitudinally extending ribs disposed on the tapered end, a peripheral shoulder disposed on the tube at the inner end of said ribs, a removable burner cap, internally tapered throughout a portion of its length and having a plurality of circumferential slots, disposed on the end of the tube and adapted to be seated on said ribs and the peripheral shoulder, and means at the opposite end of the tube for introducing gas and air therein.

2. In a gas burner, a burner tube externally tapered at one end, a plurality of ribs disposed longitudinally on the tapered portion of said tube, an annular shoulder around said tube at the inner termination of said ribs, a burner cap internally tapered throughout a portion of its length and adapted to be seated on said ribs and said shoulder, and means for securing said cap in position.

3. In a gas burner, a burner tube externally tapered at one end, a plurality of ribs disposed longitudinally on the tapered portion of said tube, an annular shoulder having a bevelled portion at the inner termination of said ribs, a burner cap internally tapered throughout a portion of its length and adapted to be seated on said ribs and said bevelled shoulder, and means for securing said cap in position.

In witness whereof I have hereunto set my hand and seal this 27th day of August 1923.

G. H. BRUNOW.