

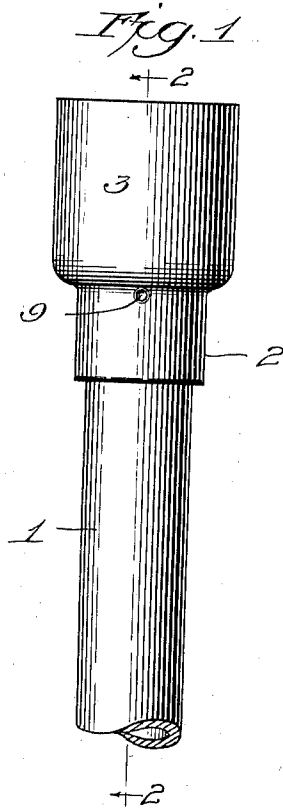
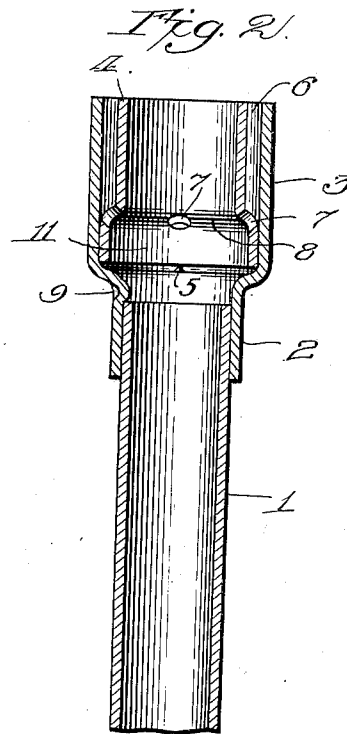
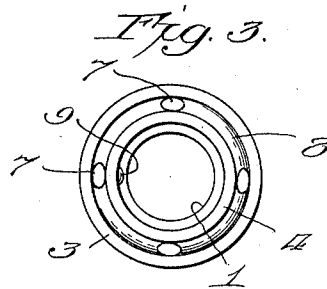
April 8, 1941.

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2,237,889

FLAME STABILIZER FOR LABORATORY BURNERS

Filed May 8, 1939



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UNITED STATES PATENT OFFICE

2,237,889

FLAME STABILIZER FOR LABORATORY BURNERS

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Application May 8, 1939, Serial No. 272,540

1 Claim. (Cl. 158—116)

Gas burners of the type used in laboratories operate properly on artificial gas. Where the gas employed has a much higher B. t. u. content, difficulties are encountered. For this reason the burner tubes have in recent years been provided with means to produce auxiliary or pilot flames surrounding the outlet ends of the burner tubes.

The object of the present invention is to provide an attachment for the burner tube of an ordinary laboratory type burner, so as to adapt it for the burning of gases that cannot be satisfactorily handled without the presence of an auxiliary or pilot flame as aforesaid.

While the main object of the present invention is to produce a device which may be attached to a plain burner tube, I believe that my attachment produces a more satisfactory burner than those heretofore in use, so that if the attachment be permanently fastened to the main burner tube, some of the advantages of the invention are retained. Therefore, viewed in one of its aspects, the present invention may be said to have for its object to produce an improved tip for a burner tube, to provide an auxiliary or pilot flame, regardless of whether all of the elements or parts thereof are permanently united or one or more of them be detachable.

The various features of novelty whereby my invention is characterized will hereinafter be pointed out with particularity in the claim; but, for a full understanding of my invention and of its objects and advantages, reference may be had to the following detailed description taken in connection with the accompanying drawing, wherein:

Figure 1 is a side elevation of the upper or outlet end of a burner tube having my attachment applied thereto; Fig. 2 is a section on line 2—2 of Fig. 1; and Fig. 3 is a top plan view of the burner and its attachment.

Referring to the drawing, 1 represents a burner tube which may be similar to the burner tube of the usual laboratory type burners. The outlet end of the burner tube fits into a short sleeve 2 projecting downwardly from the bottom of a cup-shaped element 3 which is considerably larger in internal diameter than the external diameter of the sleeve; the members 2 and 3 forming, in effect, a tubular member abruptly reduced in diameter at an intermediate point in its length. Within the cup, and coaxial therewith, is a sleeve 4 the lower end of which is expanded, as indicated at 5, to fit tightly into the cylindrical portion of the cup and thus form between this sleeve and the surrounding annular wall of the cup a deep,

narrow, annular chamber 6 closed at the bottom. A number of holes 7 are drilled through the shoulder 8 between the body portion of the sleeve 4 and the enlarged section 5.

The member 4 may be secured within the cup by reason of the tightness of its fit therein, or in any other suitable manner, so that this sleeve and the cup form a single unit which may be applied to and removed from any plain burner tube, at will; it being only necessary for the owner of a plain burner to obtain an attachment having a neck of the proper diameter to fit his particular burner. In order that the attachment shall not slip too far down upon the burner tube, it may be provided with a suitable stop to engage the upper end of the tube after the latter has entered far enough. In the arrangement shown, this stop consists of a simple inward projection 9 produced by means of a punch driven against the neck of the member 2.

It will be seen that when the attachment is in place on the burner tube, there is formed between the ultimate outlet end of the composite tube an enlarged chamber 11, that permits the mixture of air and gas rising through the tube to spread laterally underneath the overhang containing the holes 7. Consequently, some of the gaseous mixture rising through the main tube finds its way through the holes 7 and into the annular chamber 6 and, when ignited at the outlet of this chamber, provides the desired auxiliary or pilot flame; the velocity of the combustible mixture being reduced in passing into the chamber 6, so that the pilot flame stabilizes the main flame and prevents it from "blowing off," a common occurrence in ordinary burners with gases of high B. t. u. content.

It will thus be seen that I have made it possible to convert the burner tube of any ordinary laboratory burner into one that provides both a main flame and an auxiliary or pilot flame; thus making it unnecessary to discard an old burner because of a change in the character of the gaseous fuel available; permitting the user to employ any particular make of plain tube burner which he may prefer; and permitting the use of other burner attachments, such as wing tops, by removing the stabilizer from the burner and replacing it with such attachment. Of course, the tip may be permanently fastened to the burner tube by the user or be built as a part of the burner tube by the manufacturer, in which cases the user still secures the advantages of a very simple burner tip of the two-flame type.

While I have illustrated and described with

particularly only a single preferred form of my invention, I do not desire to be limited to the exact structural details thus illustrated and described; but intend to cover all forms and arrangements which come within the definitions of my invention constituting the appended claim.

I claim:

A sheet metal burner tip comprising a cup-shaped upper member and a tubular member of smaller diameter than the upper member extending downwardly from the bottom of the cup, a sleeve of about the same internal diameter as that of said tubular member and of smaller external diameter than the internal diameter of

the cup disposed within the latter co-axially thereof, the lower end of the sleeve being flared so as to fit tightly into the surrounding wall of the cup and thereby produce between the upper portion of the same and said tubular member an enlarged chamber, the sleeve being perforated at the juncture of the flaring portion thereof with the body of the sleeve; the cup being deep and the sleeve being long and extending to the top of the cup, whereby a deep, narrow, annular unobstructed chamber is formed between the sleeve and the surrounding wall of the cup.

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