Sept. 29, 1936. O. W. HAHN 2,055,529

GAS PILOT CONSTRUCTION

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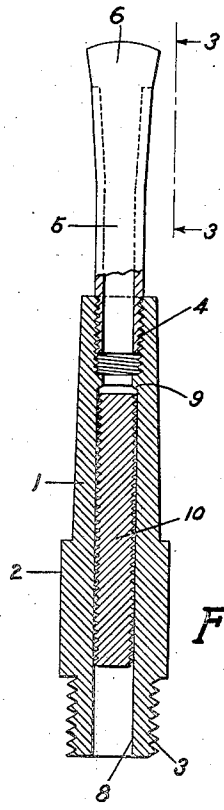


FIG. 1.

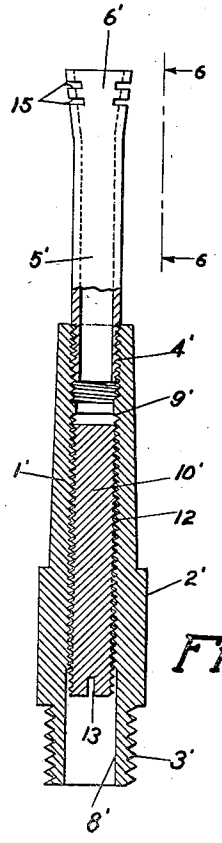


FIG. 4.

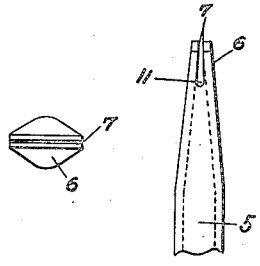


FIG. 3.



FIG. 2.

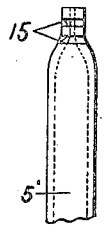


FIG. 6.

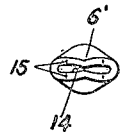


FIG. 5.

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GAS PILOT CONSTRUCTION

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Application July 25, 1932, Serial No. 624,507

1 Claim. (Cl. 158—116)

This invention relates to gas pilot lights or flames as used on gas-fired and other types of heating equipment to enkindle the main flame, and the object of the invention is to provide an improved pilot burner construction which is more dependable than those heretofore obtainable. Other objects and advantages of the invention will appear from the following description and accompanying drawing.

In the drawing Fig. 1 is an enlarged vertical, sectional view of one form of my improved pilot.

Fig. 2 is a plan view of the upper end of the burner of Fig. 1 showing the gas slot.

Fig. 3 is a side view of the upper portion of Fig. 1 as seen from the line 3—3.

Fig. 4 is a view similar to that of Fig. 1 showing a modified form of my burner.

Fig. 5 is a plan view of the upper end of the burner of Fig. 4 showing the figure 8-like gas opening.

Fig. 6 is a side view of the upper portion of the burner of Fig. 4 as seen from the line 6—6 thereof.

The burner of Figs. 1 to 3 comprises a lower tubular body 1 preferably of good heat conducting metal such as brass and of heavy walls, formed with a wrench nut at 2 and threaded at 3 for screwing into a gas pipe fitting, while extending above this heavy tubular body and preferably threaded thereto at 4 is a lighter weight metal tube or tip 5 also of good heat-conducting character, and which tube is flattened at its outer end at 6 and formed with a slot 7 (see Figs. 2 and 3) which extends downwardly at its ends into the tube and is enlarged somewhat as at 11.

Body member 1 has a plain round bore 8 shouldered at 9 where it is reduced in diameter to substantially the diameter of the bore of tube 5, while within the bore 8 of the body is a snugly fitting threaded rod 10 which may be merely pushed into position, or it may be screwed into place since being a snug fit the points of its threads will slightly grip the smooth bore of the body. The shoulder 9 forms a stop spacing the threaded rod from the flame aperture. With this threaded plug in position it will be seen that a small spiral or tortuous unobstructed through passage exists between the plug 10 and the walls of bore 8 connecting between the inlet end of bore 8 and the bore of tube 8 irrespective of whether the plug engages the shoulder 9, since the thread is continuous from end to end of the plug and the ends of the plug are cut off square while the lower face of shoulder 9 is slanted inwardly and upwardly from the bore 8, and it will be noted that the length of this passage in this form of the invention is fixed, the rod being stationary within the bore. That is, unadjustable to vary the height of the flame.

In the form shown in Figs. 4, 5 and 6 the same elements are used and similarly numbered with prime marks to show their identity, the difference in this construction being that the bore 8' of the body is internally threaded to engage the threads of the plug 10' but the thread grooves in the body are slightly wider than necessary to accommodate the thread points of member 10' as indicated at 12 so that the tortuous passage for gas still exists between members 10' and 2'. Plug 10' may in this case be also provided with a screwdriver slot 13. It will be noted that the plain or unthreaded part 8' of the bore is slightly larger than the outer diameter of the threaded rod, so that by unscrewing the plug 10' from the position shown in the drawing the length of the tortuous gas passage formed by the threads can be shortened, and thus the length of this passage depends on the initial setting of this plug, and it may be adjusted, whereas in the form shown in Fig. 1 the length of the tortuous gas passage is not adjustable, but may be predetermined by the length of threaded plug 10 slipped in place.

Another feature of the construction of Figs. 4, 5 and 6 is the form of gas passage in the end of tip 5', for in this case it takes the shape of a flattened figure 8 as shown at 14 in Fig. 5, and while it does not extend down the sides of the tube as does the slot 7 of Fig. 1, yet it is open to the side through a pair of small notches 15. These notches function similarly to the enlarged side portion 11 of slot 7 in admitting a certain amount of air to the gas stream just before it issues at the end of the tip.

In the construction of Fig. 4 both the plug and the bore are threaded, whereas in Fig. 1 the plug only is threaded, but it will be evident without further drawings that in the case of Fig. 1 the fine thread could be in the bore only and the plug be plain.

A gas pilot constructed as described will burn with a small flame regardless of considerable variations in gas pressure supplied to it and will not go out from ordinary explosion shocks, nor will it clog up, as the long tortuous passage becomes quite hot and this seems to vaporize or crack any gummy or oily content of the gas without a deposit of carbon, also vaporize any water content of the gas, and in actual tests such pilots have burned steadily under gas heating equipment for over a year just as clearly and evenly as when first

lighted. It has a pronounced metering effect and requires no other adjusting valve.

In considering my invention it will be evident that members 1 and 5 may be integral if desired, instead of being separately formed.

I therefore claim:—

A gas pilot burner unit comprising an elongated open-ended tubular body, one open end thereof providing a gas inlet and the opposite open end providing a flame aperture, an elongated plug supported within the bore of said tubular body spaced from said flame aperture and formed to leave the bore of said body between said plug and flame aperture open for the free passage of gas to said aperture, the outer wall of the plug and the wall of the bore being formed to coact to provide a small bore tortuous passageway of substantially uniform cross-sectional area communicating between said inlet and the portion of the bore between said plug and aperture, said body being of material forming a good heat conductor and provided with an air inlet to the bore adjacent said flame aperture whereby air will mix with the gas before said gas passes out of said aperture producing a combustible mixture at said aperture which, when ignited, will result in a substantial heating of the wall of the body along said tortuous passageway for heating the gas therein before it leaves said passageway, and the portion of the body between said plug and aperture being of a length to effectively conduct the heat from said aperture to the tortuous passageway when the gas is ignited at said aperture.

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