March 2, 1954 H. A. MARBLE 2,670,790

SHEET METAL FUEL GAS BURNER CONSTRUCTION

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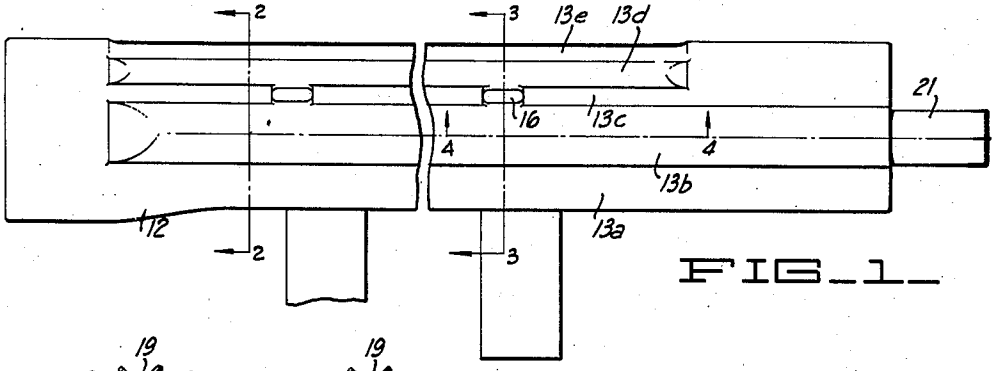


FIG_1_

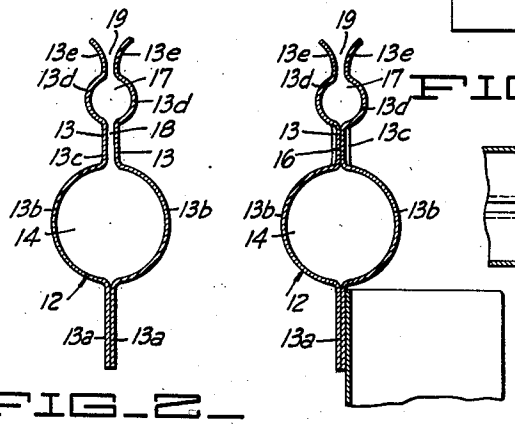


FIG_3_

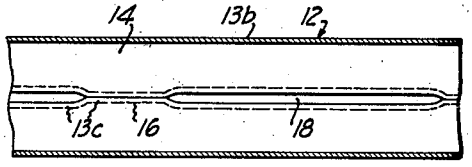
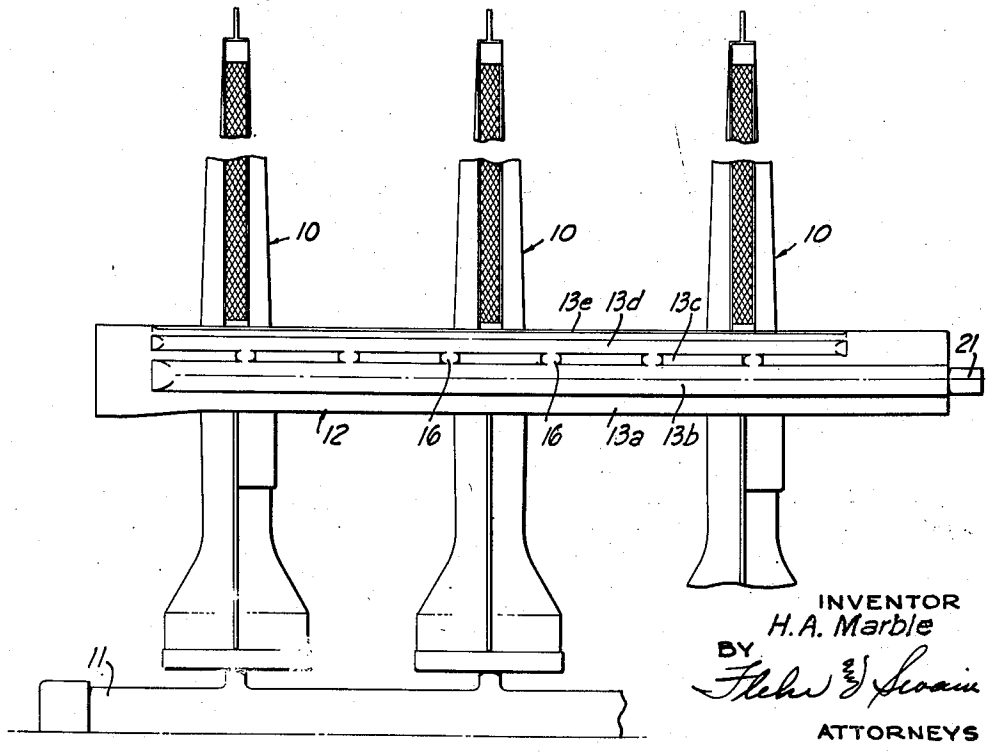


FIG_4_

FIG_2_

FIG_5_



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SHEET METAL FUEL GAS BURNER CONSTRUCTION

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2 Claims. (Cl. 158—114)

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This invention relates generally to the construction of burners suitable for use with various fuel gas burning appliances, such as natural gas domestic heating furnaces.

In general it is an object of the invention to provide a novel burner construction particularly applicable to manufacture from pressed sheet metal.

Another object of the invention is to provide an improved burner construction which can be used to advantage as a cross pilot burner for igniting a plurality of main burners.

Additional objects of the invention will appear from the following description in which the preferred embodiments of the invention have been set forth in detail in conjunction with the accompanying drawing.

Referring to the drawing:

Figure 1 is a plan view illustrating a cross pilot burner incorporating the present invention.

Figure 2 is an enlarged cross-sectional detail taken along the line 2—2 of Figure 1.

Figure 3 is an enlarged cross-sectional detail taken along the line 3—3 of Figure 1.

Figure 4 is an enlarged cross-sectional detail taken along the line 4—4 of Figure 1.

Figure 5 is a plan view illustrating a plurality of main burners assembled with the pilot burner of Figure 1 and serving to illustrate the manner in which the pilot burner is employed in practice.

In Figure 5 I have shown a typical arrangement of main burners for a fuel gas burning appliance, together with a so-called cross pilot burner. Thus the main burners 10 are arranged to be installed side by side in one or more fire boxes or combustion chambers, and are connected to a common gas supply manifold 11. Extending crosswise of the main burners, there is a cross pilot burner 12, which is designed to provide a continuous flame extending across all of the main burners.

The improved construction for the pilot burner 12 is illustrated particularly in Figures 1 to 4 inclusive. It is formed from two pieces 13 of sheet metal, with each sheet being formed, as by a pressing operation, to provide the portions 13*a* to 13*e* inclusive. The flat portions 13*a* are assembled in direct contact, and are attached together as by seam or spot welding to form in effect a fin extending along one side of the burner. Portions 13*b* are each semicircular in cross-sectional contour, whereby they form a longitudinal passage 14. The portions 13*c* are

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spaced apart and substantially parallel, except for the areas 16 which are pressed together in direct contact and spot welded together. Portions 13*d* are each substantially semicircular in cross-sectional contour, whereby they form the passage 17 which extends parallel to the passage 14. These two passages are interconnected by the passages 18, formed by the spacing between the wall portions 13*c*. The portions 13*e* are spaced apart and flared as illustrated, to form a diverging discharge orifice 19 in the form of a slit which extends substantially the entire length of the burner. One end of the passageway 14 is closed, and the other is connected to the pipe section 21, to which a gas supply pipe can be coupled. Both ends of the passage 17 are closed, and substantially its entire length is connected to passage 14 by the lateral passages 18.

When gas is supplied to the passage 14 from the pipe section 21, flow occurs through the lateral passages 18 to the smaller passage 17, and from this passage the gas is discharged through the burner slit or orifice 19. The flame produced is relatively even and unbroken for its entire length, which is attributed to the relatively uniform distribution of gas flow. The arrangement of the longitudinal passages 14 and 17, together with the lateral passages 18, contributes to this uniform flow distribution.

It will be evident from the foregoing that I have provided a pilot burner construction which is particularly adaptable for various fuel gas burning appliances, such as natural gas domestic heating furnaces. The pilot burner is of simple mechanical construction, and affords an even uniform flame which will function to ignite a plurality of main burners with a higher degree of reliability.

I claim:

1. In a cross pilot burner construction, a pair of elongated sheet metal parts, said parts each having two longitudinally extending and spaced struck out portions adapted to be brought into registry when the two parts are placed together to form two laterally spaced and longitudinally extending passages, one of said passages being greater in diameter than the other, portions of said parts being attached together to form a complete burner structure, said parts also being formed to provide spaced laterally extending connecting passages between said longitudinally extending passages and to form a substantially continuous longitudinally extending discharge slot extending coextensive with said smaller pas-

sage and communicating with one side of the same.

2. In a burner construction, a pair of elongated sheet metal parts, each of said parts being formed to provide parallel and substantially coextensive longitudinally extending struck out portions, the depth and width of one struck out portion being relatively small compared to the depth and width of the other struck out portion, said portions being brought into registry when the two parts are placed together to form two longitudinally extending passages, the cross-sectional area of one passage being substantially smaller than the other, the corresponding edge portions of said parts being secured together to thereby form a complete burner structure with a fin extending along one edge of the same, the larger of the two passages being adjacent said fin, said parts being formed to provide laterally extending and longitudinally spaced flow passages connecting said longitudinal passages and also being formed to provide a relatively narrow continuous slot for discharge of gas from the length of the smaller of the two passages, said slot extending along that edge of the complete burner structure which is remote from said fin, said structure having means for connecting one end of the larger of said passages to a source of combustible gas.

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