

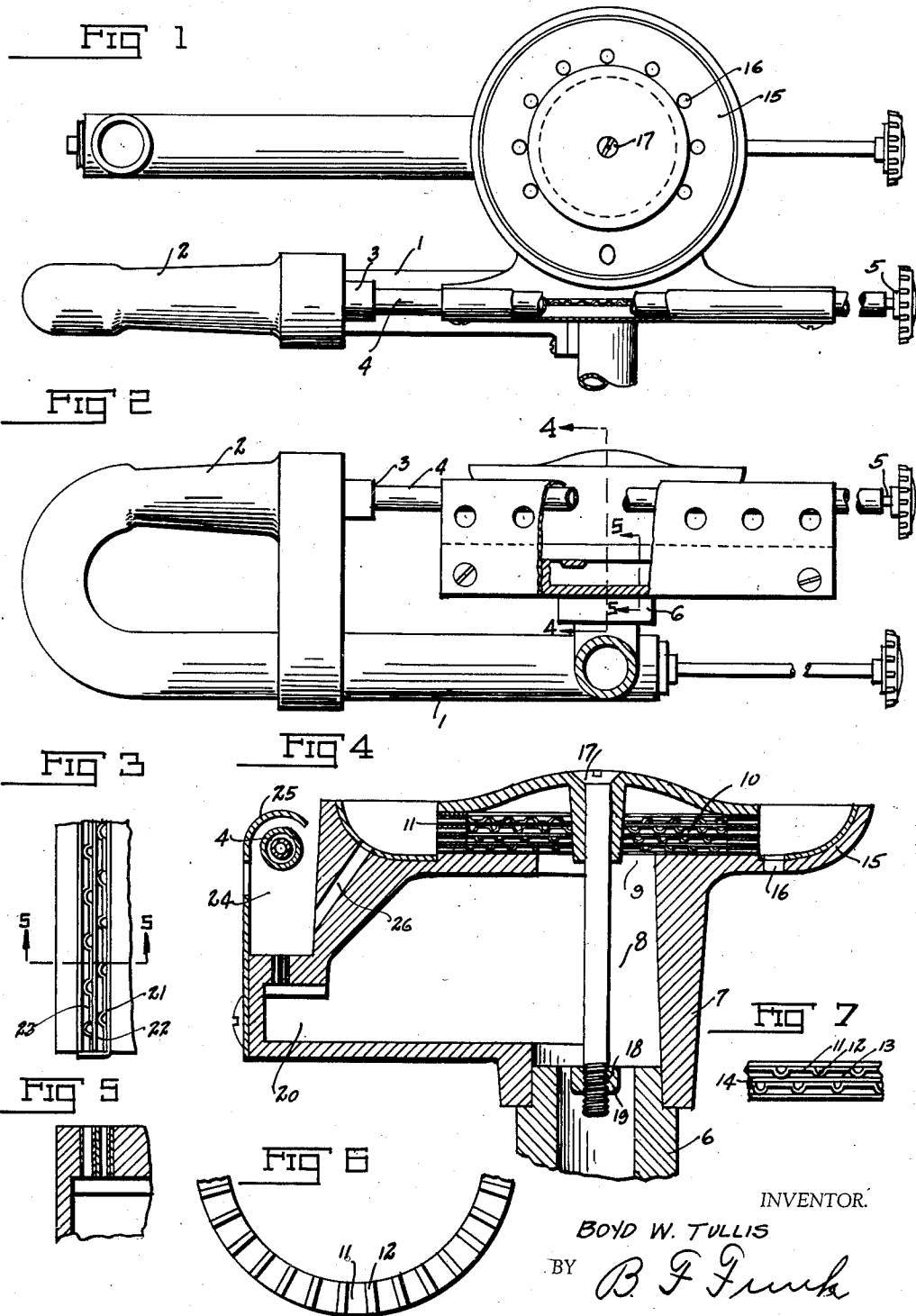
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HYDROCARBON BURNER

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## HYDROCARBON BURNER

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3 Claims. (Cl. 158-61)

This invention relates to burner construction for combusting liquid hydrocarbon fuel.

The burner is particularly adapted for cooking stoves although it is not necessarily limited to any particular use.

I have found that the best results are obtained if the burner can be located close to the grid or grate of the stove, or in other words, close to the object to be heated. In order to get the burner proper into close proximity to the grates, it is desirable to locate the vapor generator below the top of the burner so to this end I have provided a novel form of burner construction, the novelty of which will be apparent by reference to the following description in connection with the accompanying drawing in which Figure 1 is a top plan view of a burner constructed in accordance with my invention.

Figure 2 is a side elevation of the same parts being broken away to better illustrate certain other parts.

Figure 3 is an edge view of the generator heater laminations.

Figure 4 is a vertical, cross-sectional view through the burner structure on the line 4-4 of Figure 2.

Figure 5 is a sectional view of the line 5-5 of Figure 3.

Figure 6 is a fragmentary view of one of the ring laminations, and

Figure 7 is a fragmentary edge view of a group of the ring laminations.

Referring now to the drawing by numerals of reference, 1 designates the burner manifold having the usual "Bunsen" connection 2 to receive the tip end 3 of the vaporizing generator 4 controlled by the needle valve 5 in the usual manner, it being understood that gasoline or other hydrocarbon is fed to the generator in the usual manner.

The manifold 1 is provided with an upstanding tubular burner seat 6 to receive the burner casting 7, having a fuel chamber 8 with an opening 9 in its top to supply fuel into the central space 10 surrounded by the lamination 11 corrugated to provide ribs 12 forming grooves or passageways 13 with flat spacer rings 14 between them so that the fuel will discharge at the perimeter of the stack of laminations over the concave reflector 15 having secondary air openings 16.

The laminations are held on the top of the burner casting by the cap piece through the center of which a bolt 17 projects and engages the threaded portion 18 of the bar 19 carried by the

burner seat 6. To one side of the burner casting is an offset space 20 in the top of which are straight laminated bars 21 and 22. The ones designated 21 are corrugated to form spacing ribs to provide fuel spaces or passageways 23 to produce a flame below the generator 4 in space 24 beside the burner casting 7 and below the top thereof. The top 25 of the space 24 is curved so that the heated air will be substantially confined in the space 24 to keep the generator hot. The burner casting has a channel or passage 26 so that the flame from burner proper will keep the generator burner lighted and vice versa. It appears that when the flame for the generator becomes extinguished, the gas or vapor generated in chamber 24 will pass up through the passageway 26 to become ignited by the flame issuing from the burner cap so that the flame flashes down into the generator chamber to ignite the fuel passing up through the spaces between the 20 laminated bars 21 and 22. On the other hand, when the flame from the burner cap goes out, the flame adjacent to the passageway 26 will ignite the vapor surrounding the burner cap laminations. Just exactly why this is true I am not 25 prepared to state, but I have found in actual practice that one of the advantages of the burner is due to the fact that the auxiliary burner will maintain the main burner lighted and vice versa. Attention is also called to the fact that by providing the passageways in the laminated stack of progressively increasing cross sections, that the vapor enters the stack of laminations at a higher velocity or pressure than would be delivered from the stack so that the pressures at the outlets are 35 less than at the inlets, and by this peculiar arrangement the burner can be turned down so that it burns very low, an advantage long sought after but insofar as I am aware, not heretofore attained. One of the disadvantages of a gasoline burning 40 device heretofore, has been that the burner would have to be turned up relatively high in order to keep it ignited, but with my invention the burner can be turned down very low without becoming 45 extinguished.

From the foregoing, it will be seen that the burner is so constructed that it will permit the burner proper to be set close to the object to be heated and allow the generator to be conveniently associated therewith to function properly without interfering with the position of the burner. The burner may be turned down quite low because the fuel is supplied through predetermined sizes of orifices and I would have it understood 55

that the best results are obtained by making the laminations of non-corrosive material.

What I claim is:

1. A hollow burner casting having a bottom inlet and a top outlet with a fuel chamber between them, the portion of the casting surrounding the outlet being curved outwardly and upwardly, a burner communicating with the fuel chamber through the outlet having lateral openings, an offset wall carried by the casting in spaced relation to the side wall thereof to provide a vaporizing generator receiving chamber, a burner in the bottom of the chamber communicating with the fuel vapor space, the casting having a passageway communicating the chamber with the space surrounding the burner openings.

2. A hollow burner casting having a bottom inlet and a top outlet in line therewith, the casting surrounding the outlet being curved outwardly and upwardly, a burner communicating with the outlet and having a diameter less than that of the outwardly and upwardly curved portion, a

vaporizing generator receiving chamber offset on the casting, a vaporizing generator therein, a burner in the bottom of the chamber communicating with the space in the casting between the inlet and outlet and a part on the casting having a passageway between the vaporizing generator chamber and the space surrounding the burner.

3. A hollow burner casting having a bottom inlet and a top outlet with a fuel vapor space between them, a burner communicating with the outlet, a vaporizing generator receiving chamber offset with respect to the main portion of the casting and having a wall curved upwardly and inwardly over the generator, the casting having a passageway between the vaporizing generator receiving chamber and the space surrounding the burner and a burner in the bottom of the vaporizing generator receiving chamber, said burner being in communication with the fuel vapor space in the hollow casting.

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