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N. BARNES ET AL
GAS FIRED BURNER

2,959,217

Filed July 9, 1956

2 Sheets-Sheet 1

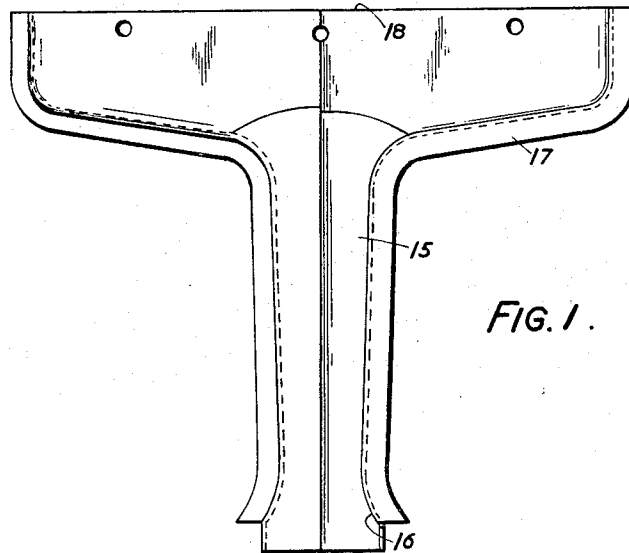


FIG. 1.

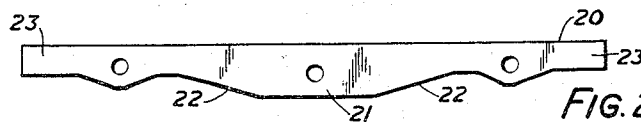


FIG. 2.

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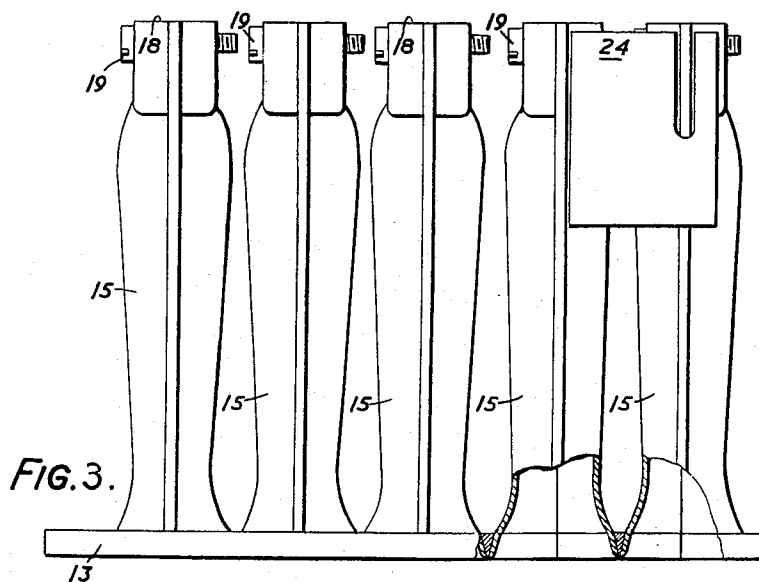
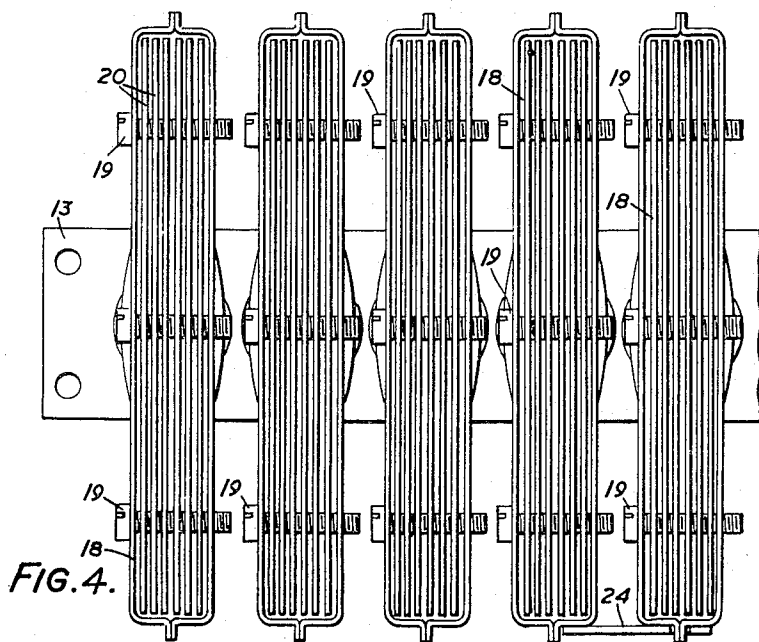
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2,959,217

GAS FIRED BURNER

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1 Claim. (Cl. 158—114)

According to the present invention in a gas fired apparatus there is provided at least one gas burner having a gas supply pipe leading to a flared burner mouth containing a series of spaced longitudinally extending strips, the strips being of a varying depth such that in use the burner produces flames whose height is substantially constant along the length of the burner mouth.

Preferably there is provided a plurality of such burners each secured to a burner support bar and each supplied with gaseous fuel from a common burner manifold via an individual injector. The burner assembly would normally be mounted beneath a combustion chamber secured to a panel and in one embodiment the burner manifold is mounted between burner supporting brackets which thus provide a rigid support so reducing to a minimum relative movement between the combustion chamber and the burner mouths.

By way of example only, a burner assembly in accordance with the invention will now be described in greater detail with reference to the accompanying drawings of which:

Figure 1 is a side elevation of a single burner,

Figure 2 is a side elevation of a baffle bar,

Figure 3 is a front elevation of a burner assembly, and

Figure 4 is a plan view of the assembly of Figure 3.

Referring now to Fig. 1 it will be seen that each burner consists of a gas supply pipe 15 the lower end 16 of which is belled slightly and secured in a hole in the support bar. The upper end of the pipe is flared outwardly as 17 to form a burner mouth 18 of rectangular form when seen in plan view. The width of the mouth approximates to the diameter of the gas supply pipe 15 whilst its length greatly exceeds that diameter. The internal diameter of the gas supply increases slightly from its connection with the support bar 13 to the start of flaring. The depth of the flared part is slightly greater at its centre than at its ends. Secured by bolts 19 inside the mouth are a number of strips 20 of metal arranged parallel with the longer side of the burner mouth. The strips form baffle bars and are spaced from one another and from the longer sides of the burner mouth by spacing means on the bolts and the upper surfaces of the bars lie in the same plane as the upper edges of the burner mouth. As can be seen in Fig. 2 the depth of the central part 21 of each bar is greater than that of the end parts and there is a regular increase in depth as at 22 from the end parts 23 where the depth is constant to the centre part when again the depth is constant. Local variations

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of the contour just described can be made to suit specific requirements. The effect of the selected contour of bar is to produce when the burner is in operation a flame height which is practically constant along the length of the burner mouth.

Each burner is of sheet metal construction and is formed in two parts welded together along a longitudinal seam. Instead of using spacer elements to space the baffle bars across the burner mouth, each bar may be tapped and screwed on to the fixing bolts. Alternatively, a fixing rod may be used which is "pinched" at intervals to hold the bars in spaced relationship and at its ends to hold the rod in position on the burner.

Secured between two burners is a plate 24 to which 15 is fitted a pilot burner (not shown) which controls a pilot safety device, for example, of the electromagnetic type in which the pilot burner flame heats a thermocouple supplying E.M.F. to an electromagnet which holds open a valve in the gas supply conduit for as long as gas issuing from the pilot burner is ignited. The electromagnet is normally of insufficient strength to open the valve from its closed position so that a manually operable resetting device is fitted to open the valve again after it has closed.

We claim:

A gas burner for a gas fired appliance comprising in combination, a gas supply pipe, a flared burner mouth connected centrally to said gas supply pipe, and, in said burner mouth, a series of longitudinal strips spaced 30 closely to each other and to the walls of said burner mouth and creating frictional resistance to flow therebetween, said strips each having an upper edge lying in the plane of the top of said mouth and a lower edge extending well into said burner mouth and creating additional frictional flow at said portions, a central portion 35 in line with and approximately the width of said gas supply pipe and over which the distance between said upper and lower edges is substantially constant at a maximum value, an intermediate portion on each side of said central portion over which said distance decreases 40 from said maximum to a lower value and outer portions adjoining said intermediate portion over which said depth is substantially constant at said lower value, a central transverse securing element and outer transverse securing elements all passing across said burner mouth through 45 each longitudinal strip whereby the latter are secured in position in the burner mouth, said securing elements passing through said strips between the upper and lower edges thereof, said central securing element being located 50 in said central portion and said outer securing elements being located in said outer portions.

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