

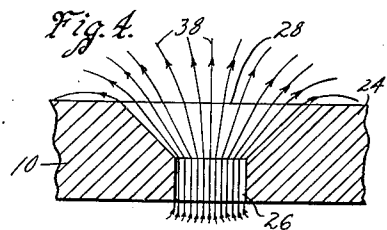
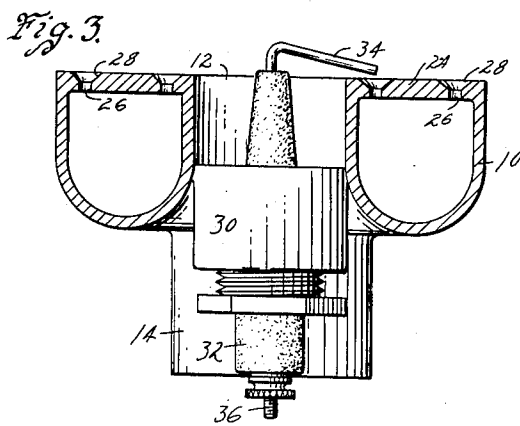
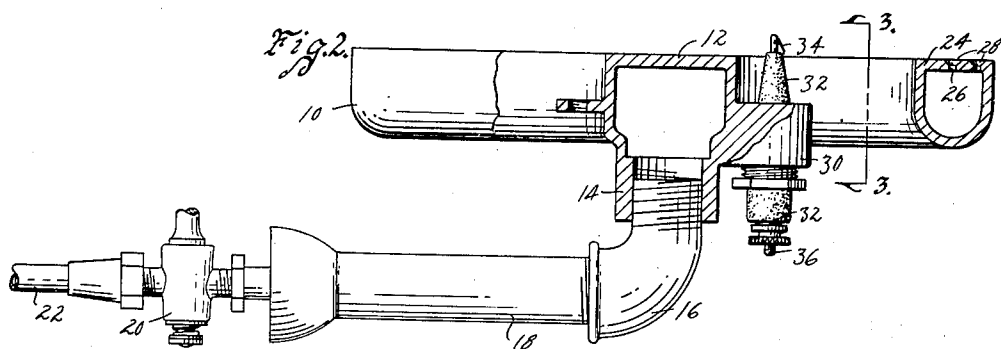
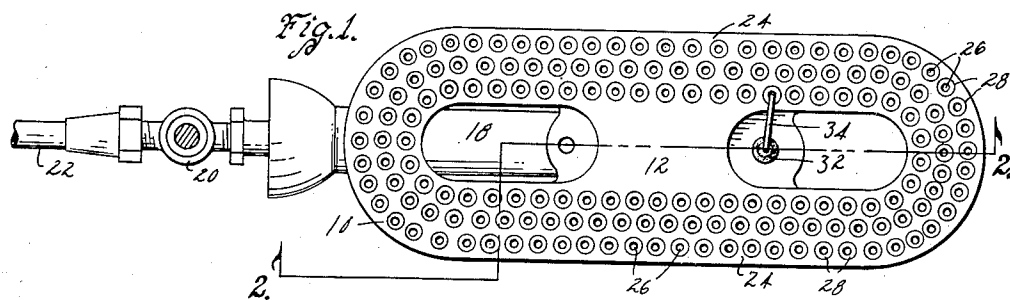
Aug. 7, 1934.

G. E. WHITE

1,968,978

GAS FUEL BURNER

Filed Sept. 8, 1931



Witness
H. A. Munzmaier

Inventor
~ Gilbert E. White ~
by Bair, Freeman & Sinclair
Attorneys

UNITED STATES PATENT OFFICE

1,968,978

GAS FUEL BURNER

Gilbert E. White, Chickasha, Okla.

Application September 8, 1931, Serial No. 561,540

1 Claim. (Cl. 158—116)

The object of this invention is to provide an improved construction for a burner for use with gaseous fuel.

5 A further object of the invention is to provide an improved gas fuel burner so constructed and arranged as to cause the flames to spread out in a blanket over and close to the surface of the burner, thereby causing intense heat with a minimum of fuel consumption.

10 Still another object of the invention is to provide an improved gas fuel burner equipped with electric spark ignition means.

15 Another object of the invention is to provide an improved gas fuel burner which is of light weight, inexpensive to manufacture, and capable of withstanding intense heat.

20 With these and other objects in view my invention consists in the construction, arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claim, and illustrated in the accompanying drawing, in which:—

25 Figure 1 is a plan view illustrating a burner constructed in accordance with my invention.

Figure 2 is a vertical, sectional elevation on the line 2—2 of Figure 1.

Figure 3 is a cross section on the line 3—3 of Figure 2.

30 Figure 4 is a detail section through one of the fuel openings in the top of the burner, illustrating the means for causing the flame to spread out over the surface of the burner.

35 The burner is composed primarily of a hollow shell 10 preferably of elongated form in plan view, and arranged to form an elliptical or oval annulus.

40 The longer or parallel sides of the annulus are connected centrally by a transverse bridge portion 12 which also is hollow and affords communication between the two passages formed on the opposite sides of the burner.

45 At the lower central part of the device, and more specifically below the bridge portion 12, is a downwardly opening boss or nipple 14 which is internally threaded and adapted to receive a fitting such as a reducing L 16. Communicating with the fitting 16 is a fuel pipe 18, which in turn is connected with a valve 20 to which gaseous fuel may be supplied by a pipe 22.

50 The upper surface of the shell 10 of the burner is substantially flat and plane and is designated by the numeral 24.

55 The top wall of the burner shell 10 is formed with a plurality of fuel openings extending there-

through and opening to the flat upper surface 24. The fuel openings are arranged in close proximity throughout the surface of the top wall and each of said openings preferably is in two parts, namely a lower straight or cylindrical portion 26 and an upper counter-sunk, tapering or funnel-shaped portion 28. The cylindrical portion 26 preferably occupies substantially one-half the thickness of the metal and the flaring portion 28 occupies the remaining half and is of course arranged with its greater diameter at the outer surface of the top wall of the burner.

60 The burner shell 10 is formed integrally of metal by the casting process and it preferably is made either of aluminum or aluminum alloy. In some respects a suitable aluminum alloy would be preferable because it would tend to produce a harder and tougher casting capable of withstanding greater heat than the pure aluminum.

65 The shell 10 is formed with a threaded socket 30 in which an insulated conical extension core 32 is mounted. The extension core has an electrode 34 which extends laterally and has its point terminating in spaced relation to the upper surface 24 of the burner adjacent one of the fuel openings for the purpose of forming a spark gap. The extension core also has a terminal post 36 to which may be attached an electric conductor forming part of an ignition circuit. It is the function of the extension core and parts associated therewith to furnish means for igniting the fuel when proper contacts are made.

70 When gaseous fuel is supplied to the burner and is ignited, it burns in the form of a relatively flat blanket close to the upper surface 24 of the burner. This is caused by the peculiar formation of the fuel openings 26—28, the action of which is shown by the lines 38 in Figure 4. The enlarged or funnel-shaped portions 28 of the fuel openings permit expansion of the gas before it escapes entirely from the openings, thus causing the gas to begin spreading out before reaching the surface of the burner, and this spreading action is continued over the surface of the plate for forming a solid blanket of flame close to the surface 24.

75 Because of this method of burning of the gaseous fuel, a high degree of heat is obtained with a minimum consumption of fuel because flames remaining close to the surface of the burner are not interfered with by action of the air and more perfect combustion is secured.

80 Experiment has proven that the use of aluminum or a suitable aluminum alloy for the

burner is advantageous from the standpoint of securing the close blanket of flame. This effect is secured to some extent, when the burner is made of aluminum or aluminum alloy, even though the fuel openings are completely cylindrical and the funnel-shaped portions 28 are omitted. It is believed the spreading effect of the flame is induced in part by the natural cohesion of the particles of gas with this particular type of metal or alloy.

However, I have found that the best results are obtained by forming the fuel openings as first described and as shown in the drawing, and that the flaring or funnel-shaped formation of the upper portions 28 of the openings is of particular value in securing the close blanket of flame and consequently the best and most efficient results from the burner, especially when burning low or at a point less than fifty per cent capacity.

I claim as my invention:—

In a gas fuel burner, an elongated hollow shell

of substantially elliptical annular formation, a hollow transverse bridge portion centrally connecting the longer sides of the annulus and affording communication between the two passages at the sides of the shell, a threaded boss formed at the lower side of said bridge portion to receive connection of a fuel supply means, the upper surface of said shell being substantially flat and being formed with a plurality of small fuel openings communicating with the interior of the shell, said shell being formed with a threaded socket, an insulated extension core mounted in said socket, and an electrode carried by said core and provided with means for connecting it to a source of current supply, said electrode having a terminal forming an appropriate spark gap with the surface of the shell adjacent one of said fuel openings.

GILBERT E. WHITE. 95

25	100
30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
75	150