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SELF-GASIFYING HEATING EQUIPMENT

Filed May 29, 1947

2 Sheets-Sheet 1

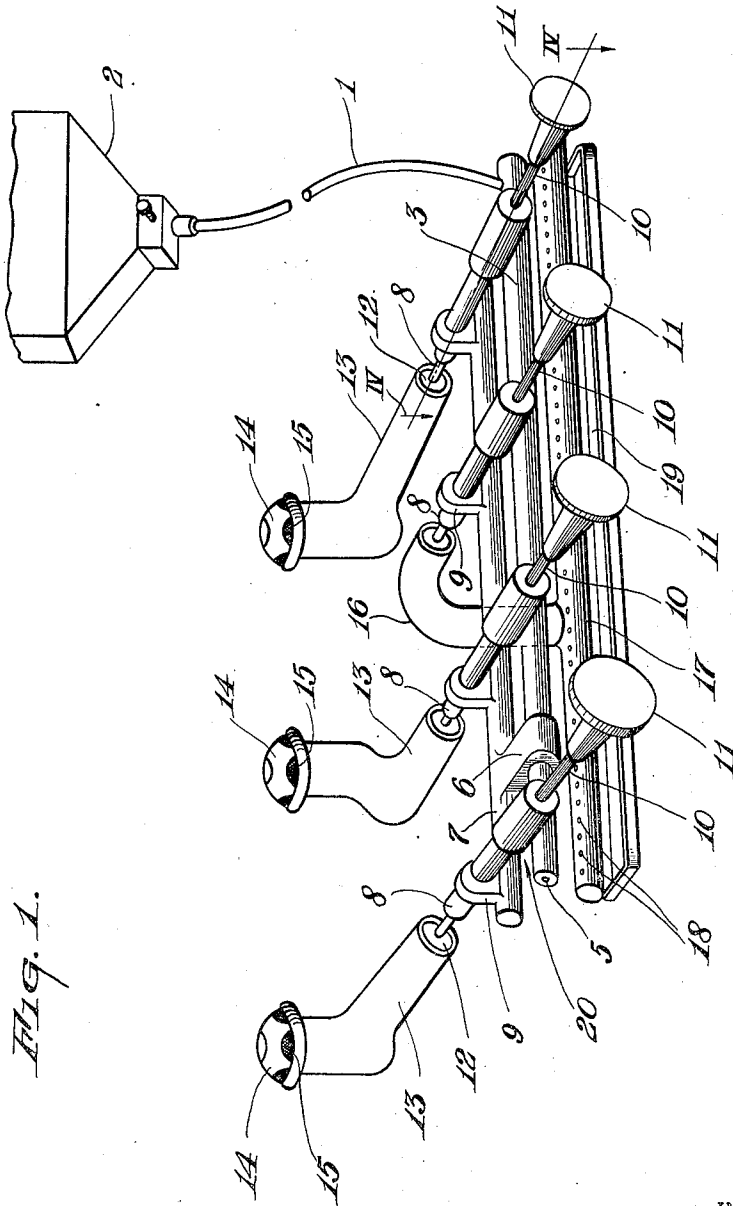


Fig. 1.

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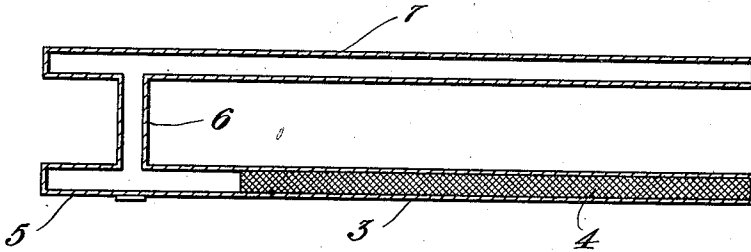


Fig. 2.

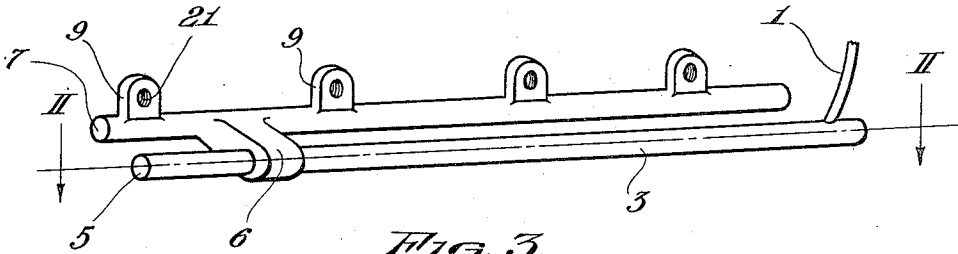


Fig. 3.

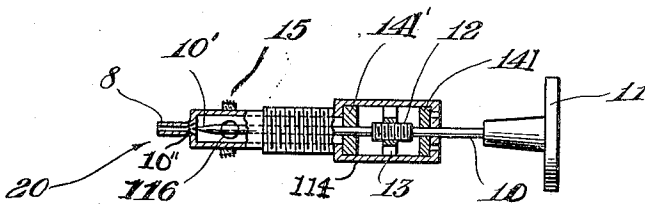


Fig. 4.

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SELF-GASIFYING HEATING EQUIPMENT

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3 Claims. (Cl. 158—63)

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This invention relates to a burner system for hydrocarbon fuel, preferably oil of the kind comprising a gasifier having a filling of metal gauze, wire or similar material and a gas chamber, means for supplying fuel to said gasifier at a comparatively low pressure by gravity, one or more valve controlled main burners, and a separate auxiliary burner of considerably smaller capacity for heating said gasifier and said gas chamber, a separate low pressure fuel supply system for each of said burners, which system is constituted by a mixing chamber, an air inlet duct and a nozzle connected directly to the gas chamber. The present application is a continuation of my co-pending U. S. application Serial No. 553,044, filed September 7, 1944, and now abandoned.

According to one embodiment of this kind of burner system the gas-chamber comprises two separate inter-connected sections, to the first of which the nozzle of the auxiliary burner is connected and to the second of which, which is most remote from the gasifier, the nozzles of the main burners are connected.

According to the present invention in a system of this kind, the nozzles of all burners are connected directly to that section of the gas-chamber which is most remote from the gasifier.

The arrangement according to the present invention offers the following advantages.

An important simplification of the system is obtained by the connection of all nozzles to the same gas chamber, which considerably facilitates the manufacture of the first gas chamber, forming part of the gasifier, while the addition of one nozzle for the auxiliary burner to the number of nozzles to be connected to the second gas chamber offers no particular difficulty.

Another important advantage is that the metal wire or like filling in the gasifier may readily be removed for cleaning or replacing without being obstructed by the presence of the nozzle of the auxiliary burner with its accessories, for example the coaxially mounted stem of the needle valve for this nozzle, as described in the specification of co-pending applications.

Yet another advantage is that in the second gas chamber a more favourable condition of the gas is ensured than in the first gas chamber, so that the gas supplied to the nozzle of the auxiliary burner is of better quality with the result that the operation of the auxiliary burner is improved.

In a preferred embodiment of the burner system according to the invention the fuel supply systems of the main burners and of the auxiliary

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burner are identical, which facilitates the manufacture of the burner system, as the manufacture of a nozzle with valve of different construction for the auxiliary burner is avoided.

In order that the invention may be clearly understood and readily carried into effect it will now be described more fully with reference to the accompanying drawings in which:

Figure 1 is a perspective view of a burner system in accordance with the invention.

Figure 2 is a horizontal cross-section of the gasifier assembly shown in Figure 1; the section being taken on line II—II in Figure 3;

Figure 3 is a perspective view of the gasifier assembly shown in Figure 1, but with the remaining structures removed for a clearer showing; and

Figure 4 is a horizontal cross-section of one of the valves 20; the section being taken on line IV—IV in Figure 1.

The liquid fuel used is preferably paraffin oil, which is especially suitable for domestic use. This liquid is supplied to the system at a low, practically constant, pressure by gravity by means of a supply tube 1 from a reservoir 2 arranged at a suitable level, preferably about 30 cms. above the burner system. The supply tube 1 is connected to a gasifier tube 3 which is provided with a filling 4 (see Fig. 2) of rolled sheet metal gauze, wire or the like. At the end of the gasifier 3, which is constructed as a long tube, there is a gas chamber 5. A communication channel or connection 6 passes from the gas chamber 5 to a second gas chamber 7 which, also in the form of a long parallel tube is arranged alongside of the gasifier 3.

The nozzles 8 for the main burners are connected direct to this second gas chamber 7 by conduits 9 through valves 20. Each nozzle is provided with a small aperture 10 controlled by a needle valve 10', a valve spindle 10 and its operating knob 11 and with an air inlet aperture 12 and a mixing chamber 13. The valve structure per se is conventional and as such forms no part of the present invention. However, by way of example, as best seen in Fig. 4, the valves 20 may comprise a casing 114 in which the spindle 10 is housed. The casing 114 has an externally threaded section 15 which screws into the internally threaded apertures 21 in conduit 9. The spindle 10 has fixed thereto an externally threaded element 12 which rides in a correspondingly internally threaded bearing spider 13 fixed in casing 114. Conventional packing 141 and 141' may be housed in casing 114. Casing

114 is apertured at 116 to permit communication between conduit 9 and the interior of casing 114. The mixing chambers 13 each communicate with a burner head 14 which is provided with apertures covered by metal gauze 15, where the main burners can be ignited. The second nozzle from the right is combined with a mixing chamber 16 which leads to an auxiliary burner in the form of a long tube 17 provided with small apertures 18 and arranged below the gasifier 3 and the gas chamber 7. Small flames having a height and section of some few millimeters are formed at the apertures 18, so that a small consumption is ensured.

The use of a second gas chamber 7 has the effect of improving the quality condition of the gas and avoids the penetration of particles of liquid fuel so that a more satisfactory operation is ensured.

When the system is set into operation it may be pre-heated by means of spirit or similar fuel in the small trough container 19. After ignition of the auxiliary burner the system is ready for immediate use for practically any length of time.

What I claim is:

1. A burner system for hydrocarbon fuel, comprising a first tubular member defining a gasifier portion and a gas chamber portion extending from and arranged at one end of said gasifier portion, a metal gauze, wire or the like filling within said gasifier portion, means to supply a hydrocarbon fuel to said gasifier portion at a point thereof remote from said gas chamber portion, a second tubular member defining a second gas chamber portion, means interconnecting said first and second gas chamber portions, a main burner, valve means interposed between said main burner and said second gas chamber portion, an auxiliary burner arranged to heat said gasifier portion and said gas chamber portions, and valve means interposed between said auxiliary burner and said second gas chamber portion.

2. A burner system for hydrocarbon fuel, comprising a first tubular member defining a gasifier portion and a gas chamber portion extending from and arranged at one end of said gasifier portion, a metal gauze, wire or the like filling within said gasifier portion, means to supply a hydrocarbon fuel to said gasifier portion at a point thereof remote from said gas chamber por-

tion, a second tubular member arranged substantially parallel to and spaced from said first tubular member and defining a second gas chamber portion, means interconnecting said first and second gas chamber portions, a main burner, valve means interposed between said main burner and said second gas chamber portion, an auxiliary burner arranged to heat said gasifier portion and said gas chamber portions, and valve means interposed between said auxiliary burner and said second gas chamber portion.

3. A burner system for hydrocarbon fuel, comprising a first tubular member defining a gasifier portion and a gas chamber portion extending from and arranged at one end of said gasifier portion, a metal gauze, wire or the like filling within said gasifier portion, means to supply a hydrocarbon fuel to said gasifier portion at a point thereof remote from said gas chamber portion, a second tubular member arranged substantially parallel to and spaced from said first tubular member and defining a second gas chamber portion, said second tubular member being provided with a plurality of substantially identical outlet ports spaced apart, means interconnecting said first and second gas chamber portions, a main burner, an auxiliary burner arranged to heat said gasifier portion and said gas chamber portions, and a plurality of substantially identical valve means each interposed between said main and auxiliary burners and said second gas chamber portion.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
410,639	Doney	Sept. 10, 1889
992,328	Barthel	May 16, 1911
1,204,051	Milbourn	Nov. 7, 1916
1,237,044	Hopkins	Aug. 14, 1917
1,359,284	Smock	Nov. 16, 1920
1,418,407	Verret	June 6, 1922
1,429,598	Lewis	Sept. 19, 1922
1,453,907	Bozarth	May 1, 1923
1,711,965	Pratt	May 7, 1929
1,771,653	Pickup	July 29, 1930