

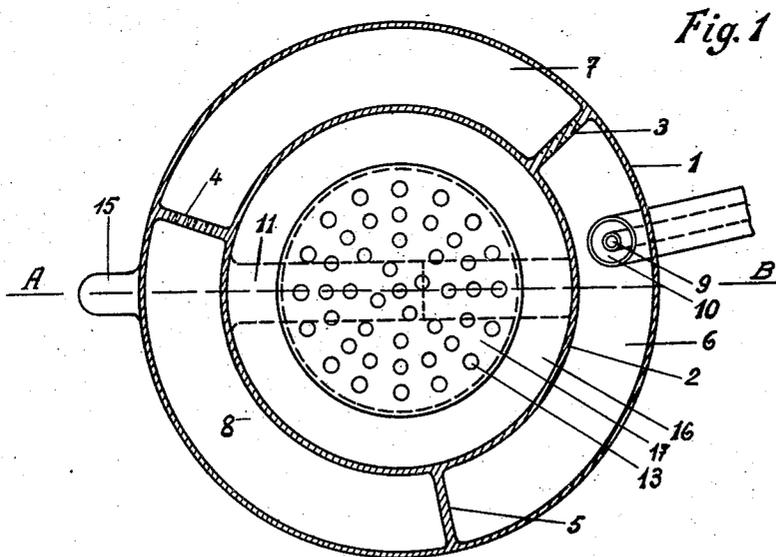
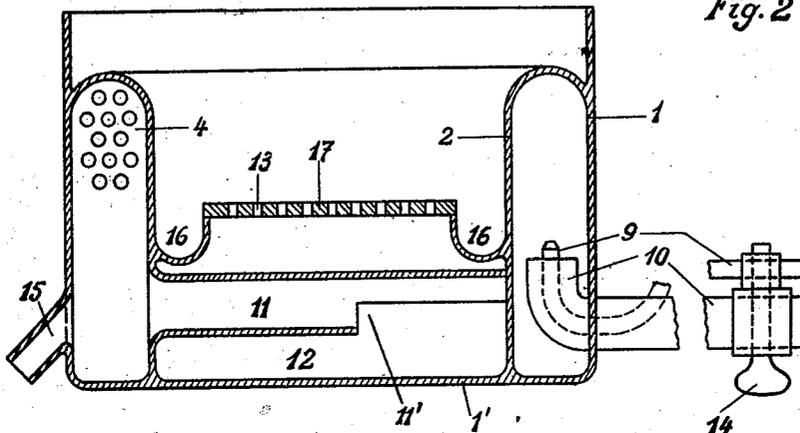
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CARBURETOR BURNER

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CARBURETOR BURNER.

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This invention relates to a carburetor burner in which a mixture of fuel and air is carbureted and burnt in a manner known in itself.

5 As compared with known burners or furnaces of the same type the present invention consists in a special construction of the burner which is in the form of a double-walled hollow cylinder or shell open at the top, the jacket space of which forms the mixing and vaporizing chamber which is subdivided by inserted partitions into a number of chambers which with the exception of two adjacent chambers one of which forms a fuel inlet and the other the gas outlet chamber are in continuous communication with one another through apertures in the partition. The gas outlet space opens near the bottom of the burner vessel into a mixing chamber out of which the gaseous mixture passes into the hollow space of the burner, the gas discharge apertures are however arranged so high up as to provide also a pre-heating channel round the nozzle head for the reception of a heating up or starting medium.

As a further characteristic it is to be emphasized that the last burning chamber which forms the gas outlet space has besides the connecting pipe to the mixing chamber also a further pipe connection by means of which other burners can also be connected in series so that a group of burners can be provided for by means of the first burner vessel provided with fuel and air supply means.

Owing to this construction a simplified burner arrangement is obtained which renders only a limited amount of space necessary and unites in itself all the appliances which are required for the operation of the burner.

The mixing of fuel and air including the subsequent gasification is effected within the burner itself in which there are only small resistances to be overcome and which therefore only involves a low working pressure.

In consequence of the smallness of the resistances combustion takes place without smoke and without noise.

Disturbances resulting from sooting up or choking cannot occur because on the one hand narrow nozzle apertures are avoided and on the other hand complete gasification and combustion take place, and do not leave residues of any kind.

The operation of the burner, in consequence of the present construction, is entirely free from objection as the flame rising in the burner ensures a sufficient heating of the walls of the burner and brings about a sufficiently rapid gasification of the mixture of fuel and air which traverses the chambers within the burner walls. The evolution of the flame within the burner walls is obtained owing to the fact that the mixture of fuel and air already contains the air necessary for combustion and fresh air from the exterior is only required for the ignition and for the combustion of the starting fuel.

A gasification in the case of the new burner is effected so quickly and richly that with an appropriate supply of fuel an overflow of gas can be obtained which suffices for feeding an additional burner connected therewith.

The new burner is illustrated in one constructional form by way of example in the accompanying drawing.

Fig. 1 is a plan of the burner with the upper part removed, and Fig. 2 is a longitudinal section through the burner on the line A—B in Fig. 1.

The burner has substantially the form of a hollow cylinder with an external and an internal wall 1, 2 which enclose a hollow space which is subdivided by partitions or separating walls 3, 4, 5 into three chambers 6, 7, 8. A double tube consisting of the two tubes 9, 10 is introduced into the chamber 6 while the chamber 8 is provided with an outlet tube 11. This latter chamber may however also have a second outlet tube 15 the purpose of which will be more fully described hereinafter. The tube 11 has a discharge aperture 11' which is directed towards the bottom 1' of the burner so that the chamber 8 is in communication with the chamber 12 located at the bottom of the burner. This chamber 12 in its turn communicates with the hollow space of the burner through the apertures 13 in the plate 17. Owing to this construction the flame is prevented from lighting back and cannot spread out into the chambers.

The oil under pressure intended for combustion is supplied to the tube or oil pipe 9 while the combustion air which is necessary for mixing with and for the combustion of the oil is supplied to the tube or oil pipe 10 by means of a fan or air pump not shown

in the drawing. These two tubes 9 and 10 have at their external ends where they separate a common cock 14 which is so constructed that by turning it both the oil pipe and the air pipe are positively opened or closed at the same time. Since fuel and air are supplied to the burner by different auxiliary appliances not illustrated the quantity of air flowing in at any particular time can easily be so regulated that it is sufficient to form a flame with the gasified fuel.

In order to set the burner in operation it is pre-heated. For this purpose a readily combustible liquid fuel such as alcohol or the like is introduced into the pre-heating channel 16 and ignited. By this means the oil entering the mixing chamber 6 is warmed and mixes with the air. Since the partition 3 is provided with apertures the mixture flows into the chamber 7 and from there out through the apertures in the partition 4 into the filter-like chamber 8 where it is completely gasified and out of which it passes, since this chamber is separated from the mixing chamber 6 by an imperforate partition, through the tube 11 and the discharge aperture 11' into the distributing chamber 12. From the distributing chamber the gaseous mixture which has been gradually warmed in the manner described up to ignition temperature, flows through the gas outlet apertures 13 in the plate 17, where it is ignited by the fuel burning in the pre-heating channel 16.

With the present burner an over-production of gaseous mixtures can be produced. This excess quantity may be made available for another burner by passing it through an outlet tube 15 closed by a cock not shown in the drawing and supplying it to the second burner.

The burner according to the present invention may be used for all purposes for which solid, liquid or gaseous fuels such as coal, oils, cooking or heating gas have hitherto been employed, such as smelting furnaces, tempering furnaces, heat treatment furnaces, re-heating furnaces, drying ovens, cooking ranges, washing boilers, steam generators and the like. As fuel there may be employed crude oil, gas oil, tar oil or mazut, in fact all the oils suitable for use in industrial furnaces may be employed.

In the burner according to the present invention the gas produced burns completely blue like cooking gas, that is at a temperature at which the heating power is a maximum. The operation of the burner, on account of the low working pressure required,

is noiseless, smokeless and free from danger. Furthermore there are no parts in which stoppages can occur. The burner may be fitted to any furnace or oven and can be made of any size and shape and of any convenient metals. Its easy applicability is also facilitated by the fact that no special auxiliary appliances are needed for producing a strong draught.

The pre-heating of the burner may also be effected by lodging an electrical heating resistance in the pre-heating channel, this arrangement not being illustrated in the drawing. By means of such a heating resistance the complete gasification and pre-heating of the gaseous mixture right up to ignition temperature can also be obtained.

What I claim is:

1. A carburetor burner, comprising a double wall for preheating a mixture of gas and air, partitions dividing the jacket space within said double wall into a plurality of vaporization chambers, some of said partitions being perforated to connect said vaporization chambers with one another in series, a mixing chamber in the bottom of the burner communicating with the last of said series of vaporization chambers, and a raised portion in the bottom of the central hollow space in the burner, said raised portion being formed with perforations communicating with the mixing chamber and leaving around it an annular channel for the reception of liquid fuel for starting purposes.

2. A carburetor burner, comprising a double wall, partitions dividing the space within said double wall into a plurality of vaporization chambers, all but one of said partitions being perforated, means for admitting fuel and air to one of said vaporization chambers adjacent to the imperforate partition, a mixing chamber, means for passing a mixture of fuel and air out of the second vaporization chamber adjacent to the imperforate partition into said mixing chamber, means for supplying a mixture of fuel and air from said second vaporization chamber adjacent to the imperforate partition to another burner, a nozzle head located within the space inside the inner wall of the burner, said nozzle head being formed with apertures communicating with the mixing chamber, and means for holding a supply of liquid fuel within the space inside the inner wall of the burner and in contact with said wall.

In testimony whereof I have signed my name to this specification.

EMIL MEIER.