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[54] **IGNITION DEVICE FOR VAPORIZING BURNERS**


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[51] **Int. Cl.** ..... **F23d 11/44**

[58] **Field of Search** ..... 431/208, 241, 242, 258, 431/262, 263; 48/103



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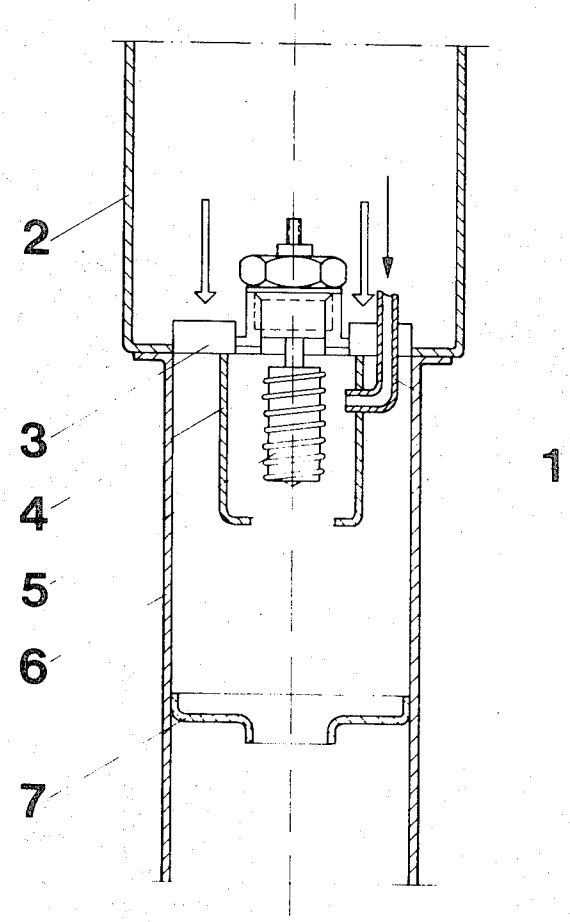
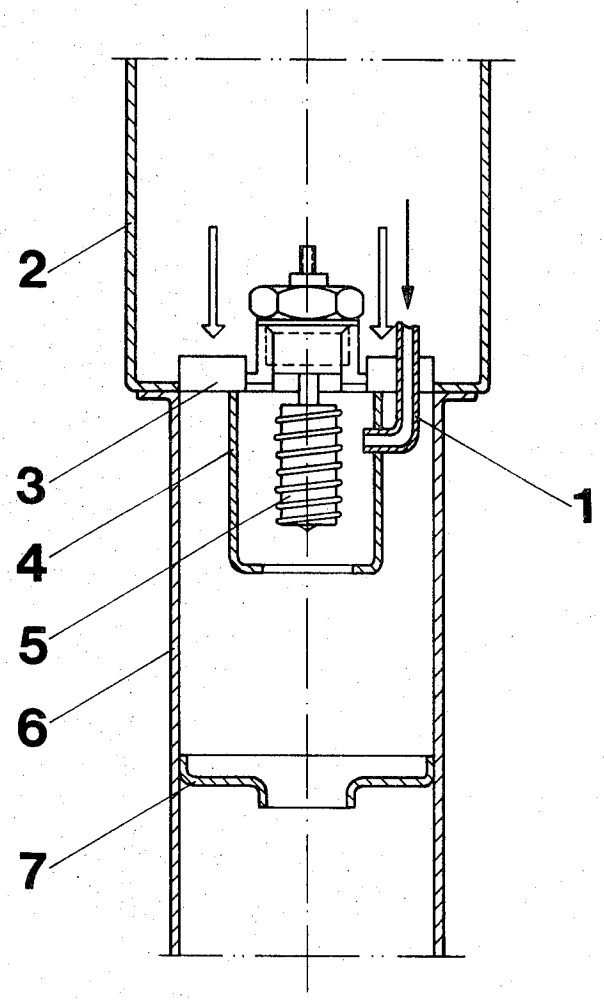
[57] **ABSTRACT**

An ignition device for vaporizing burners includes an ignition chamber and a liquid fuel tube leading to said chamber. The chamber is also provided with a glow coil ignition member. The mouth of the fuel tube is made of such a material and is placed so near to the glow coil ignition member that it, and the fuel fed through it during the ignition period, is subject to a temperature sufficiently high for causing the fuel in the tube mouth to boil heavily. Hence, small fuel drops are repeatedly shot from the tube mouth towards the glow coil ignition member.


**2 Claims, 1 Drawing Figure**

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# IGNITION DEVICE FOR VAPORIZING BURNERS

This invention relates to an ignition device for vaporizing burners having an ignition chamber and a liquid fuel tube leading to the chamber. The chamber also includes a glow coil ignition member, which initiates the combustion process through heating, vaporizing and igniting the liquid fuel fed through said tube.

In order to have a satisfactory ignition security in such burners, a small fuel drop (petrol, paraffin-oil or diesel oil) must hit the glowing coil. This is especially important in cases of low temperatures and in car heaters when the battery voltage is low. However, during the normal combustion which follows, it is a great disadvantages to allow the fuel to drop onto the glow coil. This fuel dropping may lead to coke accumulations which short-circuit two or more of the glow coil turns resulting in overload and an extremely short life of the ignition member. In order to solve this problem, only the first fuel drops are allowed to hit the glow coil for ignition. Then the air current to the burner starts to flow and is so directed that during the normal combustion the fuel drops are brought directly onto the vaporising surface. Such a method makes the burner dependent on position and also means that there is a security risk, since the fan for the air supply is not running during the heating of the glow coil. In other cases, the glow coil has been enclosed in a steel housing, on which the liquid fuel has been vaporized, the ignition being provided by a spark. This, however, requires alternating current or pulsed direct current, which is stepped up in an ignition coil, but has the advantage that the burner is independent on position.

It is an object of this invention to solve the problem mentioned in another way which is especially simple and inexpensive.

According to the present invention, the mouth of the liquid fuel tube is placed in the vicinity of the glow coil. The tube mouth is made of such a material that, due to the heat radiation from the glow coil during the ignition period, it is heated to a temperature exceeding the boiling point of the fuel. This high temperature is transferred from the mouth onto the liquid fuel fed thereto, said fuel thereby being subject to such a great evaporation that small fuel drops are repeatedly shot towards the glow coil.

Other objects and advantages of the present invention will become apparent from consideration of the following description taken in connection with the accompanying drawing, wherein:

The single FIGURE shows, in section, a vaporizing burner provided with the ignition device according to the invention.

In the drawing, **1** identifies a liquid fuel tube preferably of copper, which is included in a combustion air supply channel **2.** The number **3** identifies a turbulator for the combustion air.

The liquid fuel tube ends in a vaporizing body **4** preferably made of a steel tube or of a sintered material. The steel tube may eventually be provided on its inner side with a capillary acting coating. Inside the vaporising body **4** is inserted a glow coil ignition member **5.** Surrounding the vaporizing body there is a burner chamber **6** including a flame holder **7.**



The liquid fuel tube **1** ends inside the vaporizing body **4** relatively near to the ignition member **5,** which provides the following function. During the heating of the ignition member, the liquid fuel supply is shut off. For security reason the combustion air fan is running. The mouth of the fuel tube, due to the heat radiation from the glow coil, is heated to a temperature explicitedly exceeding the boiling point of the fuel. When the ignition member **5** has arrived at a suitable temperature, the fuel fluid is introduced. During the first seconds which follow, there will be a great evaporation from the mouth of the fuel tube. Small drops of fuel repeatedly are shot towards the glow coil initiating the combustion. After a short time, the fuel fluid causes a cooling of the fuel tube **1,** after which the fuel, due to its surface tension, flows out onto the vaporizing surface of the vaporizing body **4** without wetting the glow coil **5,** which now is currentless since the combustion has started.

During normal operation of the burner, the flame heats the ignition member **5** to a temperature which greatly exceeds the boiling point of the fuel. If, therefore, fuel is allowed to drop onto the glow coil, there will be coke bridges across the coil turns, which at next start of the burner short-circuit the coil turns resulting in overload and an extremely short life of the ignition member. This problem is eliminated by the invention and at the same time the burner is practically independent on position.

In the device according to the invention the vaporizing in the ignition moment is also locally limited, and it is therefore possible to use an ignition member having an essentially lower power consumption than is normal.

I claim:

**1.** A liquid fuel burner device comprising a hollow vaporizing body means, a liquid fuel tube leading to and ending inside said hollow body, glow coil heat producing means inside said hollow body for both initial heating the end of said tube to a temperature which vaporizes the fuel in said tube and thereafter igniting inside said hollow body the vaporized fuel issuing from said tube, the end of said tube being juxtaposed to the internal surface of said hollow vaporizing body with a relationship such that surface tension spreads liquid fuel flowing out the end of said tube over the internal surface of the vaporizing body, a burning chamber means surrounding and communicating with said vaporizing body for burning fuel vaporized inside said body while heating the outside of said body at least to a vaporizing temperature, and means for removing current from said glow coil after the initial ignition period, whereby said heat producing means may be initially activated to vaporize and ignite fuel in said tube and then deactivated after the ignited fuel has heated the vaporizing body to a point where liquid fuel in said tube is vaporized when the surface tension spreads it over the inside of said body.

**2.** The device of claim **1** wherein said vaporizing body is cylindrical and said glow coil is mounted coaxially with and inside said cylinder, said end of said tube being centrally lcoated in the cylindrical wall and directed to spray fuel toward said glow coil.

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