Dec. 16, 1958 L. PÉRAS 2,864,152

MANUFACTURE OF LOW-TENSION SPARKING PLUGS FOR ENGINES

Filed June 19, 1957

Fig. 1

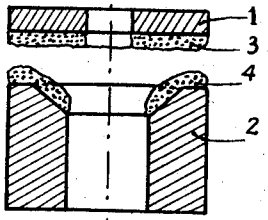


Fig. 2

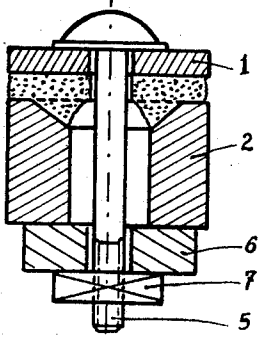
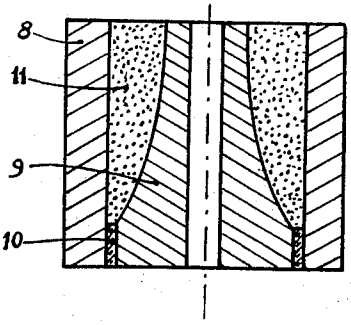


Fig. 3



United States Patent Office 2,864,152
Patented Dec. 16, 1958

2,864,152

MANUFACTURE OF LOW-TENSION SPARKING PLUGS FOR ENGINES

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Application June 19, 1957, Serial No. 666,623

1 Claim. (Cl. 29—25.12)

The present invention relates to low-tension sparking plugs intended in particular for use in explosion engines, operating by the discharge of a capacity. The sparking is localised in a device which is generally known as a cartridge, and which is formed by two electrodes separated from each other by a distance of about 0.1 to 0.3 mm., the space between the two electrodes being filled by an insulator on the surface of which the spark travels. The insertion of an insulator in a space of such small dimensions constitutes an extremely awkward problem, the more so since this insulator must have a good resistance to thermal shocks and a refractory power sufficient for it not to be rapidly damaged by the effect of these sparks; in addition, it must firmly adhere to the electrodes.

The invention relates more particularly to a method of manufacture of cartridges for low-tension sparking plugs, in which the insulating material is deposited on the electrodes by a hot-spraying process, and to the sparking plugs manufactured by this process.

This deposit may be obtained by spraying with a blow-pipe, a refractory oxide or a suitable ceramic product. The special blow-pipes employed for this process are of a known type using oxy-acetylene. A rod of the material to be deposited, of about 3 mm. in diameter, advances in a continuous manner into the flame of the blow-pipe, in which it melts progressively. The molten particles are finely divided and are carried away by a blast of air and projected on to the surfaces to be coated. Depending on the refractory material which is to be deposited, the combustible gases and fuels may have a pressure sufficient to ensure the effective division and projection of the deposit.

A different coating technique may be carried out with blow-pipes of another type, also known, which are provided with a device by means of which ceramic or refractory powder is introduced into the flame, instead of a rod, the molten powder being then projected on the object to be coated.

These methods enable deposits of alumina, zirconia, titanium oxide, porcelain, etc., to be obtained. The electrodes of the cartridge on which a deposit has been made may be used in their actual form, or preferably after grinding the refractory surface which has been deposited on the electrodes.

The application of the process to a standard form of arrangement of electrodes is shown by way of example in Figs. 1, 2 and 3 of the accompanying drawings.

The electrodes **1** and **2** of Fig. 1 are coated with alumina by a hot-spraying process, the deposit being made of only one face of each of the electrodes, at **3** and **4**. After the deposit of alumina has been ground flat, the adjustment of the two electrodes is carried out in accordance with the method shown in Fig. 2, by holding the electrode **1** applied against the electrode **2** by means of the rod **5** of conducting material, a washer **6** and a nut **7**.

The application of the method to another known form of arrangement of electrodes is shown in Fig. 3 of the accompanying drawings. In this case, the hot-spraying process is applied to the electrodes **8** and **9** in the sparking zone at **10**, whilst a borosilicate **11** is employed as an insulator between the two electrodes, and acts also as a bonding material. The borosilicate is placed in position following the method described in the U. S. Patent application Ser. No. 632,143 of February 1, 1957, under the title "A Method of Manufacture of Low-Tension Sparking Plugs for Engines."

I claim:

A method of manufacture of low-tension sparking plugs operating by discharge of a capacity, and comprising a sparking unit or cartridge having two electrodes separated by an inter-electrode insulator, the said method comprising essentially the steps of: applying to the co-operating faces of the said electrodes an insulating and refractory material which is melted in the flame of a blow-pipe and projected on the said faces by a hot-spraying process; and grinding the surface of the deposit so formed on said electrodes, before adjustment and assembly of the cartridge of the said plug.

References Cited in the file of this patent

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