April 9, 1935. G. P. CAPART 1,996,854

DEVICE FOR IONIZATING SPARKING GAPS

Filed June 2, 1933

Fig. 1

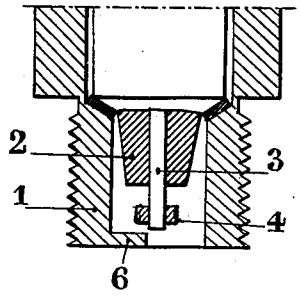


Fig. 2

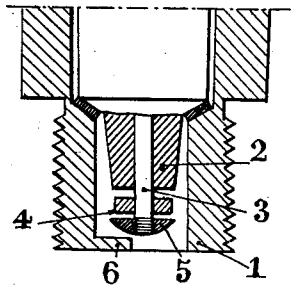


Fig. 3

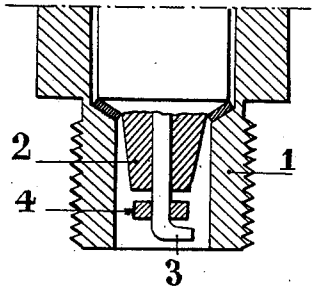


Fig. 4

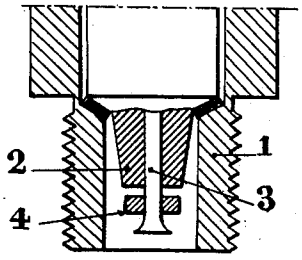
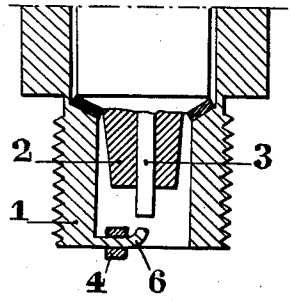


Fig. 5



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UNITED STATES PATENT OFFICE

1,996,854

DEVICE FOR IONIZATING SPARKING GAPS

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In France June 6, 1932

1 Claim. (Cl. 123—169)

It is known that it is desirable to produce, in the internal combustion engines and similar, igniting sparks as hot as possible. It is also known that starting of the spark is very much enticed by the ionization due to the presence of radioactive substances in the neighbourhood of the sparking points of the electrodes, in the sparking plugs.

It is also known that the ionization of the gases entices the combustion of the combustible or explosive fuel-mixture in the cylinder, thus causing both an increase in the motive power and a decrease in the consumption of fuel. In order to obtain ionization, the radioactive substances were heretofore incorporated either in the enamel of the insulating body of the plug, or in the earth or mass consisting in the body of the plug.

A similar result was obtained by introducing the radioactive substances into the inside of the current-bringing electrode, or into the inside of the mass-electrode or point connected to the body of the plug.

The effects of the ionization are the most powerful, as the position of the radioactive substances is more neighbour or coincident with that for which the antenna effect becomes a maximum.

Now, my invention permits to bring the mentioned advantages to any sparking plug, through subsequent introduction of an attachment or fixture previously arranged and easily mounted in its operative position.

In the attached drawing, given by way of example, I have shown diagrammatically, in section, five embodiments of sparking plugs provided with ionizating devices according to my invention.

The plug of Fig. 1 comprises the usual body 1 bearing internally the insulating member 2 in turn crossed by the inside or central electrode stem 3. According to my invention, the radioactive substance is incorporated into the removable attachment 4, being preferably annular, as shown.

The fastening or locking of the member 4 bearing the radio-active salts or substances, can be made, according to an embodiment, by threading a metallic member or cap 5 at the end of the electrode 3 (Fig. 2).

According to modifications, this member 4 can be fastened by bending the end of the electrode-stem (Fig. 3), or by flanging this end previously heated (Fig. 4).

In some cases, the member 4 can be arranged or mounted upon the stem or point 6 of the mass or hearth-electrode 1 (Fig. 5).

Due to my invention, important advantages are provided, among which improved efficiency and economy of consumption of fuel resulting from the ionization of the explosive mixture, and also self-cleaning (avoiding dirting or fouling) of the plug, resulting from the high heat of the spark.

The improvements of my invention can be applied to any number of electrodes defining one or several sparking gaps, and also where such electrodes are not parts of sparking plugs, but of other apparatus.

Obviously, other modifications can be made without departing from the spirit and scope of the invention, as defined by the appended claim.

What I claim and desire to secure by Letters Patent in U. S. A., is:

A sparking plug for igniting the fuel mixture in internal combustion engines, comprising two electrodes, i. e. the earth or mass electrode consisting in the body of the plug and the central electrode receiving current, insulating means interposed between the two electrodes for insulating them one from another, a fixture of annular shape arranged upon the central stem-formed and insulated electrode, means for removably fastening said fixture upon said electrode, said means consisting in a cap threaded upon the head of said electrode.

GUSTAVE PAUL CAPART.