

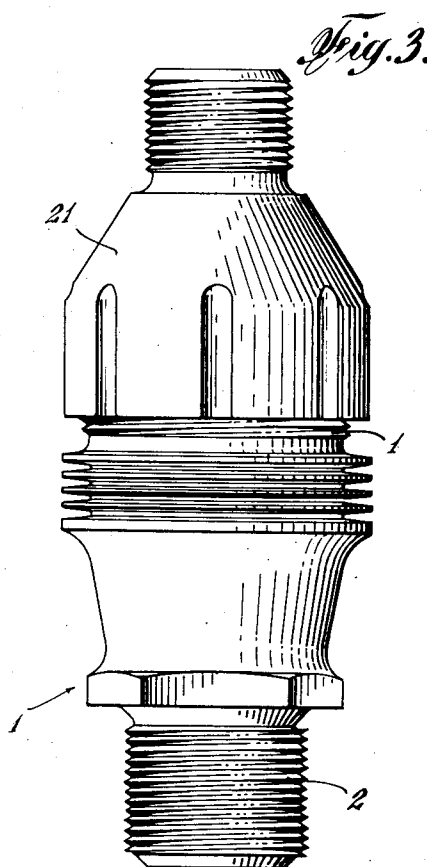
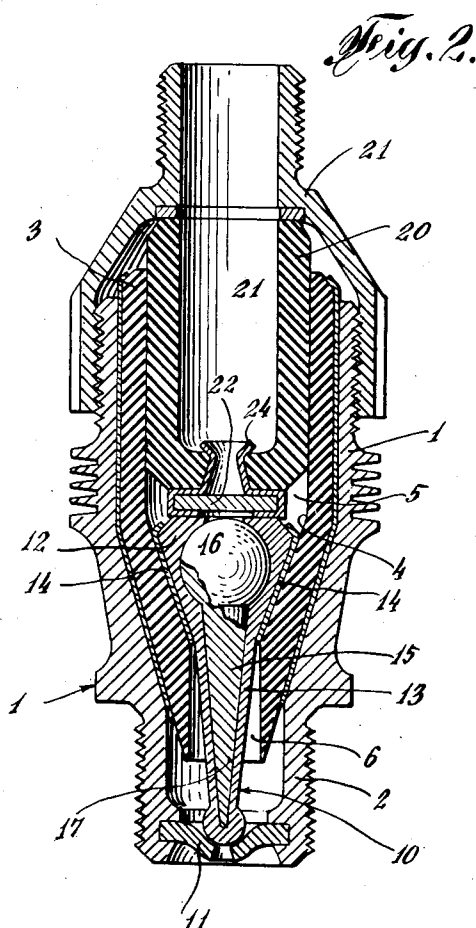
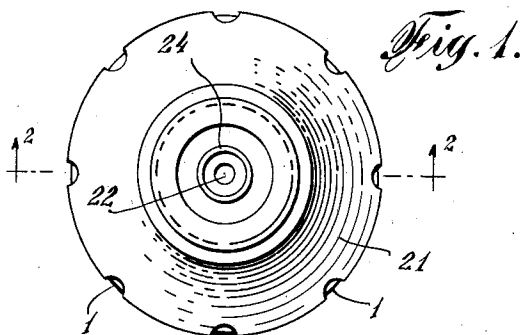
June 6, 1944. S. M. DOBROSAVLJEVITCH

S. M. DOBROSAVLJEVITCH	2,350,731
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SPARK PLUG

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INVENTOR.
Slobodan M. Dobrosavljevitich
BY *Edward Thomas*
ATTORNEY

UNITED STATES PATENT OFFICE

2,350,731

SPARK PLUG

Slobodan M. Dobrosavljevitich, Belgrade, Yugo-
slavia; vested in the Alien Property CustodianApplication June 25, 1940, Serial No. 342,325
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7 Claims. (Cl. 123—169)

This invention relates to spark plugs such as are used in connection with internal combustion engines, especially for aero-engines of high rating.

One object of the invention is to create a spark plug with a central electrode acting as a heat accumulator with efficient heat exchange.

Another object of the invention is to improve the reliability of the spark plug to avoid dangerous deterioration of its elements by special shaping and arranging of these elements especially its central electrode and the insulation parts.

A further object of the invention is to provide a spark plug especially adapted for aero-engine with a solid and compact insulator such as of oxide of aluminum or steatite with perfect gas-tightness.

In the accompanying drawing an example of this invention is illustrated.

Fig. 1 represents a top plan view of the spark plug.

Fig. 2 represents the spark plug in a section on line 2—2 of Fig. 3.

Fig. 3 represents a side view of the spark plug.

Referring to Fig. 1 the numeral 1 represents the body of the spark plug having the usual screw 2 for the insertion into the engine cylinder head. 10 is the central electrode and 11 the outer electrode of the spark plug. A solid and compact insulator 3 of any suitable material is inserted in the body of the spark plug. The said insulator 3 is arranged in the body 1 of the spark plug in such manner that free thermal dilatation of the insulator in the direction of its longitudinal axis is possible. The insulator 3 has in its interior a tapered surface 4 which serves as a seat for the central electrode 10. Above said seat 4 the insulator is provided with a chamber 5 of cylindrical form and below its seat with a second chamber 6 of cylindrical form.

The central electrode 10 is made of metal. It comprises a hollow main body having an enlarged head part 12 of an obtuse cone shape and adjacent it an end part 13 of more acute cone shape. A part of the surface of the head part 12 is covered with a layer 14 of conducting metal, such as copper. In the hollow space of the central electrode is arranged a core 15 of material with good conductivity for heat such as copper. The core 15 has an enlarged head part 16 preferably of globular shape and adjacent a tapered end part 17.

In the cylindric chamber 5 of the insulator is arranged a spacing member 20, which by means

of a nut 21 is pressed down against the head part 12 of the central electrode 10, thereby fixing this electrode in central position in the body of the spark plug. The spacing member 20 is hollow and provided with a chamber 21. Between the lower surface of the spacing member 20 and the upper surface of the head part 12 of the central electrode 10 is arranged a washer 22 of heat resisting material. Parts of this washer 22 and of the spacing member 20 are covered with layers 24 of electric conducting material.

The electric cables and contacts necessary for the operation of the spark plug may be arranged in known manner in the chamber 21 of the spacing member 20 and other suitable elements of the spark plug.

The spark plug according to the invention diminishes the possibility of fouling and overheating and permits the use of compact insulators made of oxides of aluminum and steatite.

What I claim is:

1. A spark plug comprising a hollow central electrode filled in its interior with a highly thermally conductive material, said electrode having a voluminous head-part and adjacent a tapered end-part, an insulator for said electrode having a seat for the head part of said electrode, and means pressing said head-part of the electrode against the seat of said insulator.

2. A spark plug comprising a hollow central electrode filled in its interior with a highly thermally conductive metal, said electrode having a voluminous head-part and adjacent a tapered end-part, an insulator for said electrode having a seat for the head-part of said electrode, and below said seat a chamber in the insulator through which the tapered end-part of the electrode passes without touching the walls of said chamber.

3. A spark plug comprising a hollow central electrode filled in its interior with a highly thermally conductive metal, said electrode having a voluminous head-part and adjacent a tapered end-part, an insulator for said electrode having a seat for the head-part of said electrode and above said seat a chamber forming a part of said insulator through which said electrode with its voluminous head may be inserted to rest on said seat, and a second chamber forming a part of said insulator arranged below said seat, through which the tapered end of said electrode passes without touching the walls of said chamber.

4. A spark plug comprising a hollow central electrode filled in its interior with a highly ther-

mally conductive metal, said electrode having a voluminous head-part and adjacent a tapered end-part, an insulator for said electrode having in its interior a seat for the head-part of said electrode, a chamber of cylindrical form in said insulator arranged above said seat and a second chamber in said insulator arranged below said seat, said insulator being arranged in the body of the plug to provide free thermally dilatation in the direction of its longitudinal axis, and means arranged in the chamber above the seat of said electrode for pressing down the voluminous head of the electrode against its seat.

5. A spark plug comprising a hollow central electrode, a core of material with good conductivity for heat arranged in the hollow space of the electrode with progressive mass concentration of said core to the top of the head of said electrode, means to fix said electrode interchangeably in the body of the spark plug, an insulator for said electrode having in its interior a seat for the head-part of said electrode, and means to press said head of the electrode against the seat of said insulator.

6. A spark plug comprising a hollow central electrode filled with a highly thermally conductive metal, said electrode having a voluminous head-part and adjacent a tapered end-part, an insulator for said electrode having in its interior a seat for said head-part of the electrode, a chamber in said insulator arranged above said seat, a hollow spacing member of insulating material arranged in said chamber, and means for pressing down said spacing member and thereby fixing the electrode in its central position.

7. A spark plug comprising a hollow central electrode filled with a highly thermally conductive metal, said electrode having a voluminous head-part of an obtuse cone-shape and adjacent an end-part of more acute cone-shape, an insulator for said electrode having in its interior a seat for the head-part of said electrode, a chamber in said insulator arranged above said seat, a hollow spacing member of insulating material arranged in said chamber, and means for pressing down said spacing member and thereby fixing the electrode in its central position.

SLOBODAN M. DOBROSAVLJEVITCH.