

F. R. BLAKE.
ELECTRIC SPARK PLUG.
APPLICATION FILED JAN. 24, 1912.

1,053,470.

Patented Feb. 18, 1913.

Fig. 1.

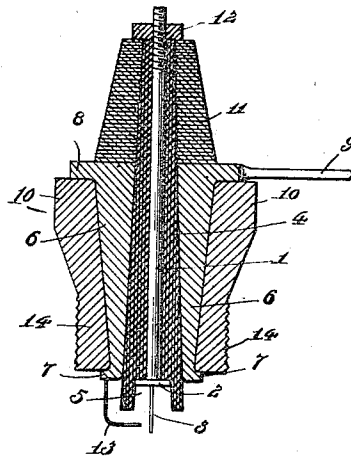


Fig. 2.

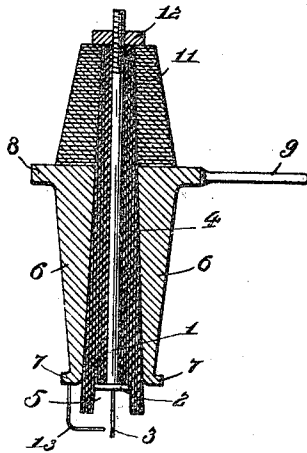
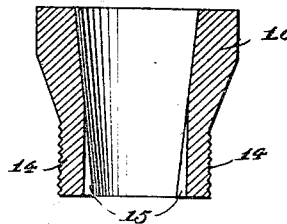


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

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ELECTRIC SPARK-PLUG.

1,053,470.

Specification of Letters Patent.. Patented Feb. 18, 1913.

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To all whom it may concern:

Be it known that I, FRANK R. BLAKE, a citizen of the United States, residing at Malden, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Electric Spark-Plugs, of which the following is a specification.

The present invention provides a spark plug for explosive engines which will admit of access being readily had to the electrodes for cleaning, replacement, adjustment or other cause and which involves a simple and economical structure.

The invention consists of the novel features, details of construction and combination of parts, which hereinafter will be more particularly set forth, illustrated in the accompanying drawing, and pointed out in the appended claims.

Referring to the drawing, forming a part of the specification, Figure 1 is a sectional view of an electric spark plug embodying the invention. Fig. 2 is a sectional view of the metal sleeve insulating core and central electrode. Fig. 3 is a sectional view of the shell.

Corresponding and like parts are referred to in the following description, and indicated in all the views of the drawing, by the same reference characters.

The central electrode comprises a slender body 1 having a head 2 at its inner end and a point 3. A core 4 of insulating material receives the electrode 1, said core tapering throughout its length and having a central opening in which the electrode is fitted. A recess 5 is formed at the inner enlarged end of the insulating core and receives the head 2 and point 3 of the central electrode. The insulating core 4 may be formed of any material and preferably consists of a tape or ribbon of insulating material wound upon itself and having the windings overlapped.

A metal sleeve 6 has a centrally disposed tapered opening to snugly receive the core 4 and is provided at its inner end with oppositely disposed lugs 7 and at its outer end with a flange 8 and projection 9, which forms a handle or finger piece to admit of turning the sleeve to secure or release the same from the supporting shell 10. A washer 11 of insulating material is slipped upon the projecting end of the core 4 and is confined between the outer end of the

sleeve 6 and a nut 12, the latter being threaded upon the projecting end of the electrode 1. The washer 11 may be of any insulating material and provides a grip or handle for manipulating the sleeve 6 when placing the same or removing it from the shell 10. An electrode 13 is had at the inner end of the sleeve 6 and curves around the inner end of the core 4 and approaches close to the point 3 so as to provide the proper spark gap.

The shell 10 is provided at its inner end with a reduced part 14, which is externally threaded to make screw connection with the head of the engine cylinder in the usual manner. The opening through the shell 10 tapers slightly to conform to the taper of the sleeve 6. The shell 10 has grooves 15 at opposite points in the wall of the opening through which the lugs 7 of the sleeve 6 are adapted to pass. After the lugs 7 clear the inner end of the shell the sleeve 6 is given a partial turn to throw the lugs 7 out of register with the grooves 15 and to cause them to engage the inner edge of the shell, thereby maintaining the sleeve 6 in position. It follows that when required the sleeve 6 and parts attached thereto may be readily removed from the shell 10 or quickly placed in position therein. When it is required to remove the sleeve 6 the same is given a partial turn to bring the lugs 7 in line with the grooves 15 when the sleeve 6 may be withdrawn from the shell.

From the foregoing description, taken in connection with the accompanying drawing, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention what is claimed as new, is:—

1. In an electric spark plug for explosive engines, a metal shell having a tapered opening and provided with longitudinal grooves in the walls of the tapered opening at the inner end thereof, a tapered metal sleeve removably fitted within said metal shell and

having an outer flange and a projecting handle at its larger end and provided with offstanding lugs at its smaller end to pass through the longitudinal grooves of the metal shell and engage the inner end thereof upon giving the sleeve a partial turn to secure it within the shell, a core of insulating material fitted within said sleeve, an electrode inserted in the core of insulating material, and a second electrode having connection with the metal sleeve.

2. In an electric spark plug for explosive engines, a metal shell having a tapered opening and provided with longitudinal grooves in the walls of the tapered opening at the inner end thereof, a tapered metal sleeve removably fitted within said metal shell and having an outer flange and a projecting handle at its larger end and provided with offstanding lugs at its smaller end to pass through the longitudinal grooves of the metal shell and engage the inner end thereof upon giving the sleeve a partial turn to secure it within the shell, said tapered sleeve having an electrode at its smaller end, a

tapered core of insulating material fitted within the said sleeve and projecting beyond the ends thereof and having a recess at its inner or larger end, an electrode fitted within the tapered core and having a head at its inner end to engage the inner end of the recess thereof, said electrode being further provided with a point extending into the said recess and approaching close to the electrode of the before mentioned sleeve to provide a proper spark gap, said electrode projecting beyond the core and having its end threaded, a washer of insulating material slipped upon the outer end of the core and engaging the metal sleeve, and a nut fitted to the threaded end of the centrally disposed electrode to confine the washer upon the core and hold the parts in place.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK R. BLAKE.

Witnesses:

MAY S. BLAKE,
ABBIE MEARS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."