C. B. NELSON.

SPARK PLUG.

APPLICATION FILED DEC. 6, 1910.

1,013,048. Patented Dec. 26, 1911.

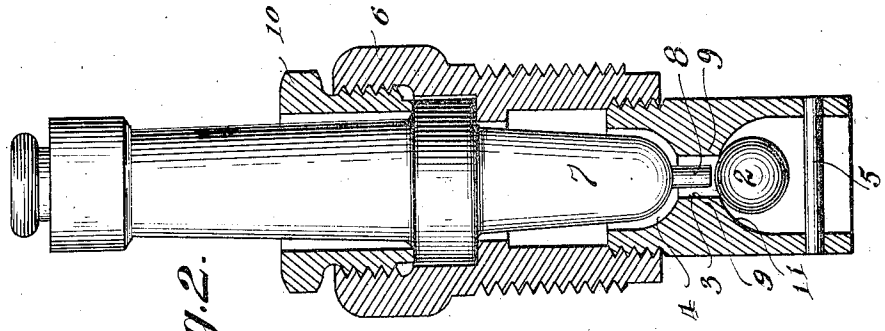

Fig. 2.

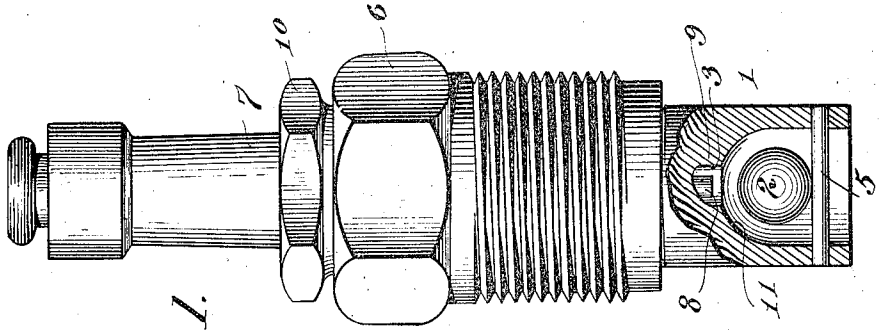

Fig. 1.

Witnesses
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UNITED STATES PATENT OFFICE.

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SPARK-PLUG.

1,013,048. Specification of Letters Patent. Patented Dec. 26, 1911.

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To all whom it may concern:

Be it known that I, CHARLES B. NELSON, a citizen of the United States, residing at Lindsborg, in the county of McPherson and State of Kansas, have invented new and useful Improvements in Spark-Plugs, of which the following is a specification.

The present invention provides a spark plug for explosive engines which will prevent the electric contacts from becoming covered with soot or short circuiting, the purpose being to prevent the oil used for lubricating the cylinder and piston from reaching the sparking contacts or electrodes during the travel of the piston at the time explosion of the combustible mixture takes place.

The invention interposes a valve between the sparking electrodes and the cylinder, said valve being automatically seated the instant explosion takes place so as to prevent oil reaching the contacts and fouling the same.

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 claim.

Referring to the drawing, forming a part of the application, Figure 1 is a side view of a spark plug embodying the invention, a portion of the plug being in section to show the sparking electrodes and the valve for protecting the same, said valve being unseated. Fig. 2 is a vertical central section of the plug, the valve being seated so as to protect the sparking terminals and prevent oil reaching the same.

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

The plug comprises a shell 6 to which is fitted a gland 10 in the usual manner, said gland serving to confine the packing interposed between the shell and core 7 of dielectric material and which supports the electrode 8 to which one of the wires is attached in the well known manner. The lower portion of the shell 6 is internally threaded to receive a tubular body 1, which is of metal, said body having a contracted portion leaving an opening 3 in which the lower end of the electrode 8 extends, said contracted portion forming an annular electrode or contact between which and the extremity of the electrode 8 is formed the spark gap. The lower wall of the contracted portion of the hollow body 1 slopes toward the opening, as indicated at 11, to form a valve seat against which the valve 2 closes the instant explosion takes place, thereby sealing the opening 3 and preventing oil reaching the sparking terminals of the electrodes. A cross bar 5 extends across the lower end of the hollow body 1 and supports the valve 2 and prevents downward displacement thereof. The valve 2 consists of a metal ball which is unseated except at the instant explosion of the gaseous mixture takes place, the sudden force being sufficient to move the valve 2 upward on its seat so as to close the opening 3 and prevent oil from being forced into the chamber 4 surrounding the lower end of the core 7 and in communication with the annular spark gap formed between the sparking terminals 8 and 9, the latter consisting of the inwardly extending portion of the body 1 bordering upon the opening 3. The ball form of valve prevents the valve from becoming covered with soot because the position of the valve constantly changes and the motion and change of position is sufficient to dislodge any soot that may tend to adhere thereto.

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 claim appended hereto.

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

A spark plug comprising a metal shell, a tubular body fitted to the lower end of the shell and having its intermediate portion contracted to form an annular electrode, a core of insulating material secured within

the shell and having its lower end extending into the upper space of the tubular body, an electrode arranged within the core and having its lower end extending into the contracted space of the tubular body, and a ball valve located in the lower space of the tubular body and adapted to be moved upward by the force of explosion to close the lower end of the contracted portion of the tubular body.

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

CHARLES B. NELSON.

Witnesses:
ALLEN WILBER,
JOHN ELIASON.