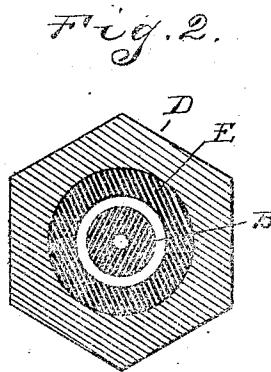
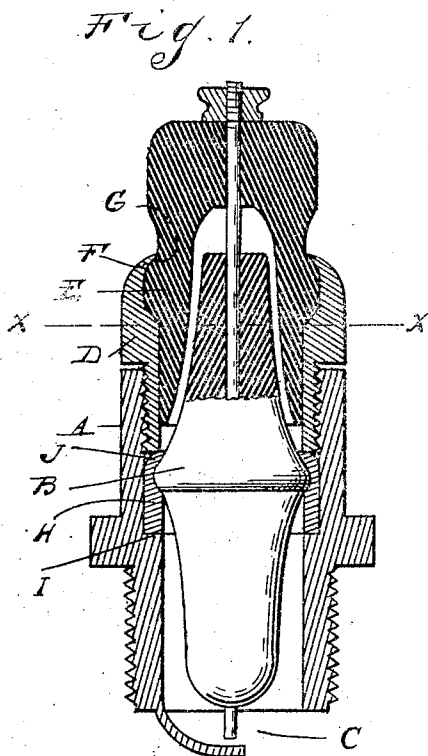


A. SCHMIDT.
SPARK PLUG.
APPLICATION FILED MAR. 16, 1912.

1,062,612.

Patented May 27, 1913.



Witnesses
James P. Barry
W. K. Ford.

Inventor
Albert Schmidt
B. *Albert Schmidt*
attys.

UNITED STATES PATENT OFFICE.

ALBERT SCHMIDT, OF FLINT, MICHIGAN, ASSIGNOR TO CHAMPION IGNITION COMPANY,
OF FLINT, MICHIGAN, A CORPORATION OF MICHIGAN.

SPARK-PLUG.

1,062,612.

Specification of Letters Patent.

Patented May 27, 1913.

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To all whom it may concern:

Be it known that I, ALBERT SCHMIDT, a citizen of the Republic of France, residing at Flint, in the county of Genesee and State of Michigan, have invented certain new and useful Improvements in Spark-Plugs, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The invention relates to spark plugs and has for its main object the avoidance of breakage of the insulators due to sudden jolts or jars to which the machine may be subjected.

15 In the present state of the art it is usual to employ in spark plugs, electric currents of high voltage and consequently there is danger of short circuiting. To avoid this danger it is usual to provide the insulators with a portion of considerable length projecting out from the metallic casing so as to produce a sufficient air gap between the case and the connector for the electrode to avoid short circuiting by jumping. This

20 projecting portion of the insulator is however, frequently broken off due to some sudden jolt or jar such as frequently occur with motor vehicles.

The present invention is designed to overcome this difficulty by dispensing with the projecting portion of the insulator and at the same time securing effective insulation, the construction being as follows:

In the drawings, Figure 1 is a central longitudinal section through the spark plug; Fig. 2 is a cross section on line $x-x$ Fig. 1.

A is the metallic outer casing of a spark plug and B is the insulator in which the electrode C is secured.

40 D is the clamping sleeve for securing the insulator B in the case. The insulator B instead of projecting beyond the case to provide the necessary spacing, is cut-off, but short circuiting is avoided by providing an insulating lining for the case. Thus as shown, the insulator B projects but slightly beyond the metallic sleeve D and the latter is provided with an insulating lining E which also preferably forms a hood for inclosing the end of the insulator B. The lining E may be secured within the sleeve D by any suitable means but as shown the sleeve has an outwardly extending thin flange F which is peened over a shoulder G

55 on the insulator lining, holding the latter

from displacement and also forming a water proof joint. The portion of the lining E which projects beyond the sleeve F is of much greater diameter than is usual with the projecting insulators of spark plugs and the cross section is sufficient to withstand the jolts and jars without danger of breaking.

The insulator B may be secured within the case A by any suitable means but as shown, a metallic ring H is arranged about a bead or enlargement of the body of the insulator and is secured thereto by peening one end of the ring over the bead. The ring H is then clamped by having one end thereof bearing against the shoulder I on the case while the other end J is engaged by the clamping sleeve D.

In use, short circuiting of the current is prevented between the electrode and the metallic case by the lining E which extends for a sufficient distance to make a safe air gap between the metal of the electrode and the metal of the case. At the same time danger of breakage of the insulator is avoided by the reduced length of the projecting portion thereof, and further by tapering this projecting portion so as to reduce its mass and provide the largest section at the point of attachment.

What I claim as my invention is:

1. In a spark plug, the combination with a metallic case, of an electrode insulator within said case having an enlarged central portion and a tapering end portion, securing means for said electrode insulator engaging the enlarged portion thereof, a metallic clamping sleeve for said securing means engaging said case, and an insulator lining for said clamping sleeve surrounding said electrode insulator and spaced therefrom.

2. In a spark plug, the combination with a metallic case, of an electrode insulator having an enlarged central portion and tapering end portions, a metallic ring surrounding said enlarged central portion and having a gas tight engagement therewith, a metallic clamping sleeve engaging said case and clamping said ring against a shoulder on the case, and an insulator lining within said metallic sleeve surrounding said electrode insulator and spaced therefrom.

3. In a spark plug, the combination with a metallic case, of an electrode, an insulator

for the electrode arranged within said case, a metallic clamping sleeve for securing said insulator within the case, and an insulator lining for said metallic sleeve surrounding
5 and spaced from said electrode insulator, said lining being secured to the metallic sleeve independent of the electrode.

4. In a spark plug, the combination with a metallic case, of an electrode insulator
10 within said case, a metallic ring engaging the insulator and seated in the case, a metallic clamping sleeve engaging said case and clamping the ring to its seat, and an insulator lining within said metallic sleeve
15 and surrounding said electrode insulator.

5. In a spark plug, the combination with

a metallic case, of an electrode insulator within the case having an enlarged portion, a metallic ring secured to the insulator and seated in said case, a metallic sleeve engag- 20
ing said case and clamping the ring to its seat, and an insulator lining within said metallic sleeve and surrounding said insulator, said insulator lining and the metallic sleeve being secured together by a shoulder and 25
socket joint.

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

ALBERT SCHMIDT.

Witnesses:

MAGIBEL BRICKER,

F. J. UTLEY.