

A. SCHMIDT.
SPARK PLUG.
APPLICATION FILED DEC. 20, 1913.

1,128,819.

Patented Feb. 16, 1915.

Fig. 1.

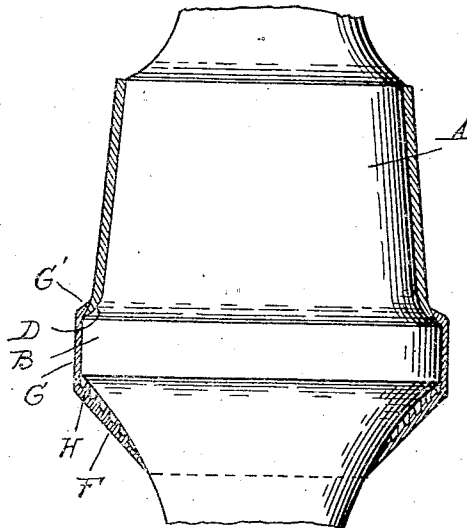
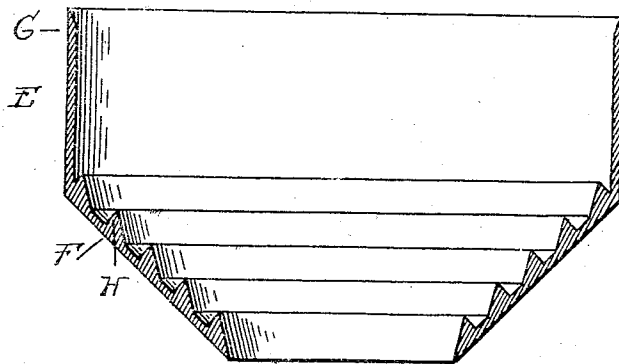


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

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SPARK-PLUG.

1,128,819.

Specification of Letters Patent.

Patented Feb. 16, 1915.

Application filed December 20, 1913. Serial No. 807,870.

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.

The invention relates to spark plugs of that type in which the insulator is provided with a metallic sleeve permanently secured thereto and forming the means for attachment to the metallic case. Such constructions have the advantage that a more perfect seal may be formed between the metallic ring and the case than is practically possible between the bare porcelain and the case, but on the other hand, difficulty has been experienced in maintaining a gas tight seal between this ring and the porcelain.

It is the object of the present invention to overcome this difficulty by an improved construction as hereinafter set forth.

In the drawings: Figure 1 is an enlarged section through a spark plug insulator, showing my improved construction of ring attached thereto; and Fig. 2 is an enlarged cross section through the ring before attachment.

A is a portion of a spark plug insulator formed of porcelain or other suitable material; B is an annular enlargement formed integral with the insulator and having the lower beveled face C and the upper face D; E is the metallic ring having a lower beveled portion F conforming to the general shape of the shoulder C and an upwardly-extending flange G for fitting over the enlargement B. The inner face of the portion F instead of being formed with a surface parallel to that of the insulator is provided with a series of annular ridges or knife edges H which form the bearings contacting with the porcelain. The ring E is secured to the porcelain, first, by pressing the portion F against the opposed face C with sufficient pressure to upset the metal forming the ridges and to conform the same to the surface of the porcelain. This is possible, for the reason that the contacting surface of the ridges is relatively small and also that the ring is formed of a relatively soft metal, such, for instance, as aluminum. After thus conforming the ring

to the porcelain it is permanently secured by spinning over the flange G, as shown at G' Fig. 1, thereby retaining the ridges H in sealing contact with the porcelain.

With the construction described, leakage of gas between the ring and the porcelain is effectively prevented, first, by the exact conformity of each ridge to the porcelain surface against which it bears, and second, by having a plurality of these ridges, so that if one is defective there will be others to form the seal. Leakage between the ring and the outer case of the spark plug may be easily prevented by any of the constructions heretofore used, and consequently when the porcelain is secured in its case it will be gas proof.

What I claim as my invention is:

1. In a spark plug, the combination with the insulator, of a metallic ring permanently secured thereto and detachable therewith from the metallic case, said ring being provided with a plurality of annular bearings upset or deformed into exact conformity with the contacting surface of the insulator.

2. In a spark plug, the combination with the insulator having an annular enlargement, of a metallic ring surrounding said annular enlargement, permanently secured thereto and detachable therewith from the metallic casing, said ring being provided with a plurality of annular ridges upset or deformed into exact conformity with the surface of the insulator, and the upset portion of said ring being spun over said enlargement of the insulator.

3. In a spark plug, the combination with the insulator having an annular enlargement with a beveled lower face, of a metallic ring surrounding said enlargement having a beveled portion conforming to the angle of said beveled face, and a series of projecting annular ridges on the inner face of the beveled portion of said ring upset or deformed into exact conformity to the insulator face, the upper portion of said ring being spun over said annular enlargement.

4. In a spark plug, the combination of an insulator having an annular enlargement with a beveled lower face, of a ring having a beveled portion conforming to the general angle of said beveled face and provided with a series of annular knife edge ridges upset into exact conformity to the surface of the insulator, and an upwardly-extending flange

on said ring spun over said annular enlargement.

- 5 In a spark plug, an insulator provided with an annular enlargement having a beveled lower face and an oppositely-facing upper shoulder, a metallic ring surrounding said enlargement having a corresponding beveled portion with a series of knife edge ridges upon its inner surface, upset or de-
10 formed into exact conformity with the in-

ulator surface, said ring being provided with an upwardly-extending flange spun over the oppositely-facing shoulder of said annular enlargement.

In testimony whereof I affix my signature 15
in presence of two witnesses.

ALBERT SCHMIDT.

Witnesses:

LOUIS CHEROBY,
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