A. SCHMIDT.

SPARK PLUG.

APPLICATION FILED JULY 24, 1913.

1,155,515. Patented Oct. 5, 1915

Fig. 2.

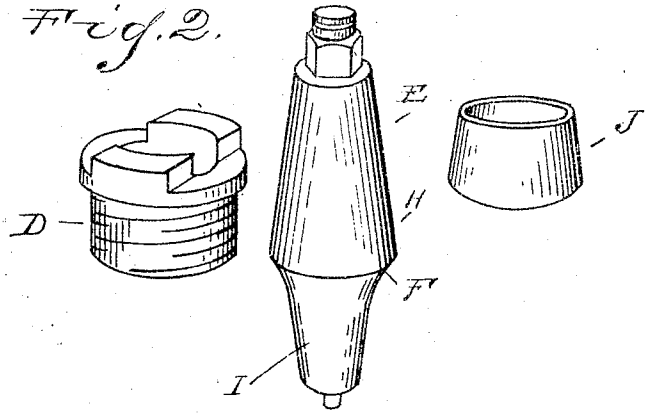
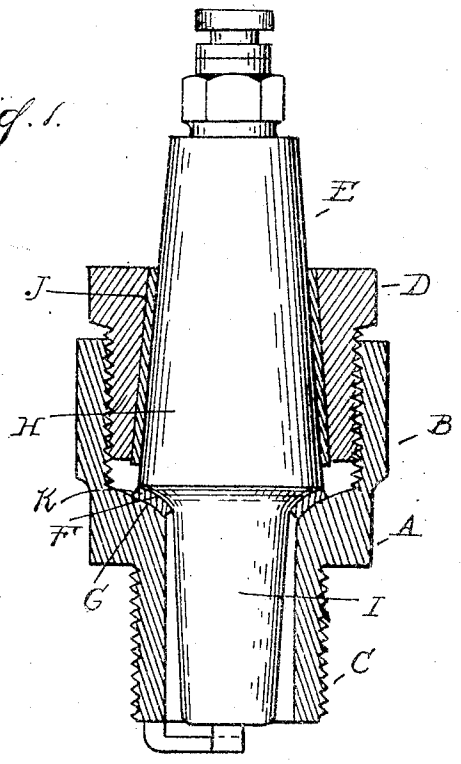


Fig. 1.



Witnesses
W. K. Ford
James P. Barry

Inventor
Albert Schmidt

By Whittemore Hulbert & Whittemore.

Attys.

UNITED STATES PATENT OFFICE.

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

SPARK-PLUG.

1,155,515. Specification of Letters Patent. Patented Oct. 5, 1915.

Application filed July 24, 1913. Serial No. 780,865.

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, and has more particular reference to the means for securing the insulators in the metallic casing.

In the drawings: Figure 1 is a central longitudinal section through the plug; and Fig. 2 is a perspective view of some of the parts detached.

A is a metallic casing provided with a hexagonal portion B and threaded nipple C.

D is a bushing having a threaded engagement with an internally threaded portion of the casing A, and being provided with a tapering or conical bore.

E is an insulator formed with a shoulder F for bearing against a complementary shoulder G in the casing and also having upon opposite sides of said shoulder an upwardly-tapering portion H and a downwardly extending portion I of reduced diameter.

It is one of the objects of the invention to provide means for holding the insulator within the casing by a bearing of considerable extent. Such a bearing performs the double function of distributing the stress upon the insulator and also of forming a heat conducting medium for absorbing the heat of the insulator and dissipating the same. To this end the tapered bore of the bushing D is preferably complementary to the tapering portion of the insulator. Instead, however, of forming a direct engagement between the bushing and insulator, an inner bushing J is first sleeved upon the insulator, this being preferably made of a softer metal than the bushing D and forming a bearing surface on the insulator. Preferably I form the bushing of aluminum. This metal is sufficiently soft and pliable and also possesses a high degree of heat conductivity.

In assembling the parts, the insulator E is placed in the casing A, with a gasket or packing K interposed between the shoulders F and G. The bushing J is then sleeved upon the tapering portion of the insulator, after which the bushing D is engaged therewith and turned in the threaded portion of the casing A. This will draw the bushing J downward upon the insulator, and at the same time will press the shoulder F toward the shoulder G, compressing the gasket and forming a gas tight seal. By reason of the extended surface of the bushing J, the pressure on the insulator is distributed and is comparatively slight at any one point, while at the same time this extended surface rapidly absorbs the heat of the insulator and conducts it into the bushing D and casing A. As a result, the heat absorbed by the inner end of the insulator, which is in contact with the burning gases, will be conducted through the portion I of reduced diameter, into the enlarged portion, and from the latter be dissipated through the bushing and wall of the casing.

What I claim as my invention is:

1. A spark plug, comprising an outer casing having a threaded nipple, an internally threaded outer portion and a shoulder bearing therebetween, an insulator having a portion within the nipple portion and an enlargement forming a shoulder opposed to the shoulder on the casing and a portion tapering outward from said shoulder, a bushing having a threaded engagement with the internally threaded portion of said casing and a tapered bore, and an inner sleeve or bushing of substantially the length of said last mentioned bushing interposed between said last mentioned bushing and the tapering portion of said insulator forming an extended surface in contact with each and a heat conducting medium therebetween.

2. A spark plug, comprising a casing, an insulator therein having an enlargement

forming a shoulder opposed to a complementary shoulder on the casing and tapering outward from said shoulder, a tapering bushing surrounding said tapering portion of the insulator and having a threaded engagement with the casing, and a second tapering bushing extending substantially the length of said first-mentioned tapering bushing, interposed between said insulator and first-mentioned tapering bushing to form a seat and heat-conducting medium.

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

ALBERT SCHMIDT.

Witnesses:
B. DYNICHARD,
W. G. LA ROCK.