Jan. 26, 1932. A. B. SCHUPP 1,843,045

METHOD OF MAKING SPARK PLUGS

Filed Aug. 5, 1927

Fig. 1.

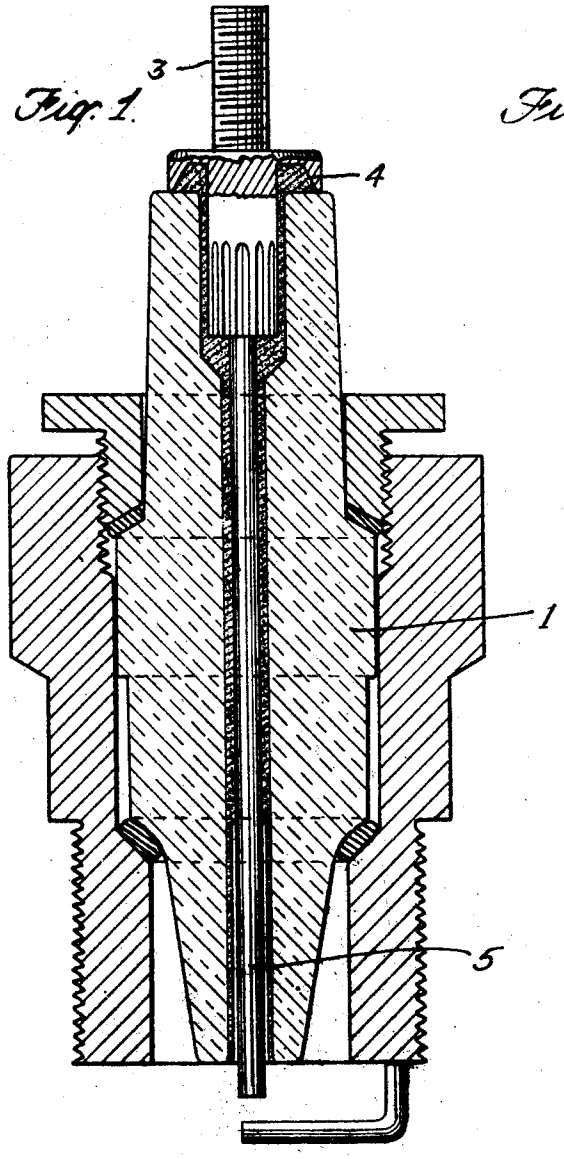
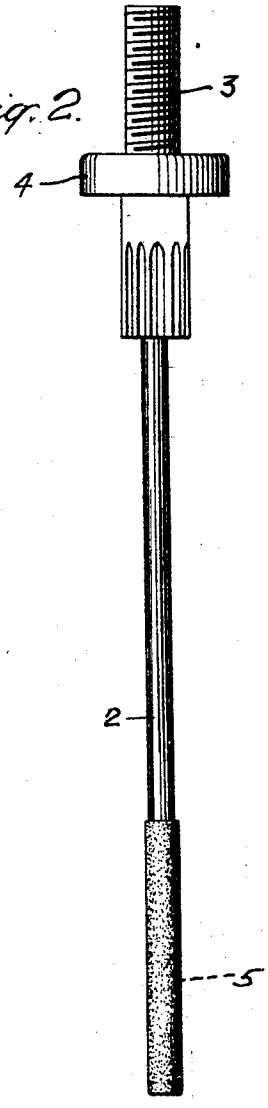


Fig. 2.



INVENTOR
ALFRED B. SCHUPP
BY
Moser & Watts
ATTORNEYS

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UNITED STATES PATENT OFFICE

ALFRED B. SCHUPP, OF RICHMOND HILL, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO MOTO METER GAUGE & EQUIPMENT CORPORATION, OF LONG ISLAND CITY, NEW YORK, A CORPORATION OF DELAWARE

METHOD OF MAKING SPARK PLUGS

Application filed August 5, 1927. Serial No. 210,858.

This invention relates to the manufacture of spark plugs, and has for its object the provision of improved methods for forming an expansion space between the lower portion of the center electrode and the adjacent inner wall of the insulator.

The following is a description of methods for carrying out the invention in the manner at present preferred; but it will be understood that various modifications and changes may be made without departing from the spirit of the invention and without exceeding the scope of the claims.

The lower portion of the center electrode of a spark plug of course expands under the high temperature of the firing chamber of an engine; and in order to prevent such expansion breaking the insulator, a small annular space is provided between said lower portion of the electrode and the wall which defines the bore of the insulator.

It is customary to attach center electrodes within the bore of spark plug insulators by means of cement, in order to form a sealing joint therebetween. In carrying out the process, it has been the practice to fill the bore of the insulator with cement in a plastic state and then pass the center electrode therethrough until its lower end projects. The assembly is then baked until the cement has hardened. Under these conditions, the electrode is, of course, cemented to the insulator throughout the length of the bore. Because of the absence of expansion space for the lower end of the electrode, the insulator frequently breaks in use. The present invention overcomes this objectionable feature of such cemented assemblies, and provides simple, inexpensive and efficient methods of forming an annular expansion space.

The invention will best be understood by reference to the accompanying drawings, wherein there is illustrated one method of carrying out the same, and in which Fig. 1 shows, partly in section and partly in elevation, a spark plug embodying the invention; and Fig. 2 shows, in elevation, the center electrode and terminal post assembly portion of such spark plug, with a coating of paraffin or other similar material applied over a part of the lower portion of the center electrode.

Like reference characters indicate like parts throughout the drawings.

Referring to the drawings, Fig. 1 shows a spark plug provided with a shell having a ground electrode, a coupling nut and gaskets, which form no part of the present invention. An insulator 1, which may be of fired porcelain, is provided with a longitudinal bore, in which a center electrode 2 is adapted to be operatively seated. The upper end of the center electrode comprises a terminal post 3, provided with a recessed flange 4.

In carrying out the invention, the bore of the insulator is filled with cement in a plastic state, in accordance with the usual practice. The lower portion 5 of the center electrode 2 is coated with paraffin or other suitable substance, by melting such substance and dipping the electrode therein, or in any other well-known manner. The paraffined end of the center electrode is then inserted in the upper end of bore and passed therethrough. The inserted cement is hardened and the paraffin is melted and allowed to run off, leaving a small annular space between the lower portion of said electrode and the adjacent inner wall of the insulator. The paraffin coating preferably extends from the tip of the electrode to a point opposite the lower shoulder of the insulator, as indicated in Fig. 1.

I claim:

1. The method of forming an expansion space between a center electrode and a spark plug insulator having a central bore, which comprises placing cement in a plastic state in said bore, applying to the lower portion of said electrode a coating of low melting point material, passing the end of said electrode through the plastic cement contained in the bore of the insulator, hardening the cement, and removing the coating of low melting point material.

2. The method of forming a spark plug insulator and electrode assembly in which the insulator has a central bore therein, which comprises placing cement in a plastic state in the bore, coating the lower portion of an electrode to increase its diameter, passing the end of said electrode through the plastic ma-

terial contained in the bore of the insulator, attaching the upper portion of the electrode to the wall of the insulator bore by hardening said plastic material, and removing said coating.

In testimony whereof I have affixed my signature to this specification.

ALFRED B. SCHUPP.