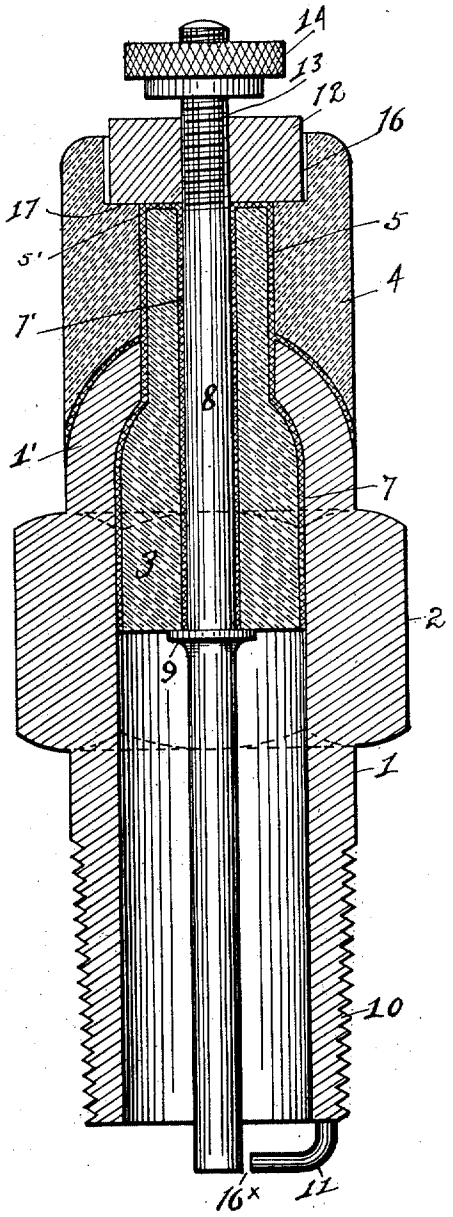
J. J. MACBETH.

SPARK PLUG.

APPLICATION FILED AUG. 26, 1918.

1,301,862.

Patented Apr. 29, 1919.



WITNESSES:

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SPARK-PLUG.

1,301,862. Specification of Letters Patent. Patented Apr. 29, 1919.

Application filed August 26, 1918. Serial No. 251,412.

To all whom it may concern:

Be it known that I, JEREMONT J. MACBETH, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Spark-Plugs, of which the following is a specification.

My invention comprises an improved spark plug of the type used in connection with gas engines.

The object of the invention is to improve the method of manufacture of spark plugs with a view to simplifying the same and reducing the manufacturing cost, and at the same time provide a durable and highly efficient spark plug.

The improvements have to do more specially with the mounting of the insulator bodies whereby a minimum use is made of screw thread connections and the work of assembling the parts is relatively simple, and efficiency is preserved.

A knowledge of the invention will be readily gained from the following description thereof in connection with the accompanying drawing which is a longitudinal sectional elevation made upon a scale somewhat larger than the actual size of the spark plug in order to more clearly illustrate the elements thereof.

Referring more specifically to these elements, 1 designates the outer shell or main body of the plug, the upper end terminating in the form of a dome 1′. The lower portion of said shell or main body is provided with exterior screw threads 10 for attaching the plug to the cylinder of an engine (not shown). The body of said shell or body is provided with an enlarged portion in the form of a nut 2 by which the attachment is made with the cylinder of the engine, this nut 2 being formed integral with said shell. 3 designates an internal body of insulation, such for example, as porcelain. The lower portion of this porcelain body 3 is enlarged to conform to the dome shaped character of the outer shell in which it is housed. The upper portion of said insulator 3 is reduced in diameter and extends above and out of the dome-shaped end of the outer shell. 4 designates an outer insulator body which is supported upon the dome-shaped end of the outer shell and incloses the upper portion of the internal insulator 3. The upper end of the insulator body 4 is provided with a recess 16 which is larger in area than the opening of said body 4 into which the upper portion of the internal insulator body 3 projects. Within the space between the internal insulator 3 and the body or outer shell 1 and the space between the upper portion of the internal insulator 3 and the outer insulator portion 4 cementitious material 7 and 5 is placed for the purpose of tightening or sealing the respective bodies together. 8 designates a terminal stem or electrode which passes through the internal insulator 3 and the nut 12 and holds or supports the said internal insulator 3 by an integral collar 9 formed on said stem below the said insulator. The upper portion of the electrode or stem 8 is provided with screw threads 13 which are engaged by the nut 12. The nut 12, as before stated, is received by the recess 16 in the upper end of the outer insulator body 4 and the same is instrumental in supporting the electrode 8 and the internal insulator 3 in position, said nut engaging the annular shoulder 17 which is formed at the bottom of the recess 16. The space between the nut 12 and the upper end of the internal insulator 3 is also sealed by a suitable cementitious substance 5′ as is also the space between the stem 8 and internal insulator 3 sealed with cement 7′. 14 designates a binding nut on the upper end of the electrode 8. 11 designates a terminal or electrode secured to the bottom of the outer shell or body 1 and pointing in proximity to the end of the stem or electrode 8 and providing in connection therewith the sparking point 16ˣ.

From the description given above it will be seen that the internal insulator 3 is inserted into the outer shell or body 1 through the end having the larger opening and that it is held securely in position therein in a manner which provides for a requisite amount of co-efficiency of expansion and contraction. It will also be observed that any tapered or contracted areas are not depended upon to contribute to holding the internal insulator in position. It may be stated here that while the matching surfaces between the outer shell or main body and the internal and external insulators are shown to be of rounded or of dome-shaped form it will be apparent that these matching surfaces might be made of a tapered or beveled character. It is thought, however, that the rounded form is more preferable.

Having described my invention, I claim:

In a spark plug, the combination of an

outer shell having a rounded end, an inner insulator body filling the rounded end of said shell and having a reduced portion of uniform diameter extending beyond said end, a straight electrode member extending through said inner insulator body and the reduced extended portion thereof, an outer insulator body formed to receive the rounded end of the outer shell and into which the reduced portion of the inner insulator projects, and a nut engaging said electrode member and supporting the same on said outer insulator body.

In testimony whereof I affix my signature.

JEREMONT J. MACBETH.