H. F. WHALTON.

SPARK PLUG.

APPLICATION FILED MAY 10, 1913.

1,116,655. Patented Nov. 10, 1914.

FIG_1_

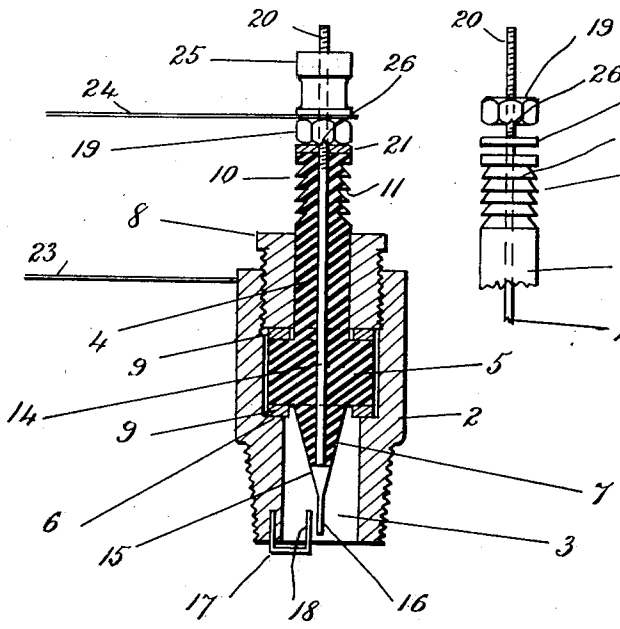
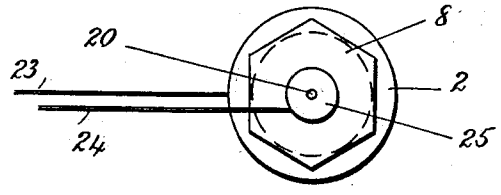


FIG_3_

FIG_2_



Inventor

Witnesses

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UNITED STATES PATENT OFFICE.

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SPARK-PLUG.

1,116,655. Specification of Letters Patent. Patented Nov. 10, 1914.

Application filed May 10, 1913. Serial No. 766,869.

To all whom it may concern:

Be it known that I, HILARY F. WHALTON, a citizen of the United States, residing at Key West, in the county of Monroe and State of Florida, have invented certain new and useful Improvements in Spark-Plugs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to spark plugs for igniting the combustible charges of internal combustion engines used on motor boats and other places where exposed to spray and moisture; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed whereby short-circuiting is prevented and hot sparks are produced.

In the drawings, Figure 1 is a vertical section through a spark plug constructed according to this invention. Fig. 2 is a plan view of the same. Fig. 3 is a side view of the projections.

The body portion 2 of the plug is formed of metal, and it has a cylindrical gas chamber 3 in its lower end portion. The core 4 is formed of insulating material, and it has a collar 5 at its middle part arranged opposite a shoulder 6 at the upper end of the chamber 3. The core also has a conical portion 7 which projects centrally within the gas chamber 3, and its upper end portion projects upwardly through a screwthreaded gland 8 which secures the core in the plug body. Packing washers 9 of suitable material, such as indurated fiber, are interposed between the plug body and the collar, and between the collar and the gland, to form tight joints.

The projecting end portion of the core is provided with a series of downwardly and outwardly inclined surfaces or projections 10 arranged one above another and having horizontal surfaces 11 between them. These inclined surfaces 10 are adapted to prevent spray from forming a layer on or running down the surface of the projecting portion of the core, and thereby short-circuiting the current.

A metallic rod 14 extends vertically through a central hole in the core, and has a small collar 15 on its lower part which bears against the lower end of the conical portion 7 of the core. The lower end portion 16 of the rod 14 is arranged within the gas chamber 3 of the body, and the conical form of the part 7 assists in projecting flame from the said chamber. The collar 15 is conical and forms a continuation of the conical part 7, and the part 16 of the rod is arranged on the axis of the gas chamber. A long spark gap is formed between the part 16 of the rod, and one end portion 18 of a U-shaped wire terminal 17. The parts 16 and 18 are arranged parallel to each other within the gas chamber 3, and the other end of the wire terminal 17 is secured to the plug body.

The upper end portion of the rod 14 is screwthreaded, and 19 is a nut which engages with the screwthreaded portion 20 of the rod, and draws the collar 15 against the lower end of the core. A small packing washer 21 is arranged between the nut and the core to make a tight joint. One circuit wire 23 is connected with the plug body, and the other circuit wire 24 is connected to the rod 14 by a nut 25. The nut 19 has V-shaped locking grooves 26. This plug is specially adapted for use in connection with marine internal combustion engines which are exposed to spray and moisture, and which miss fire when a short circuit is formed by a layer of moisture covering or running down the projecting surface of the core. The arrangement of the terminals also produces hot sparks which give a satisfactory ignition of the contents of the cylinder by first igniting the gas in the chamber 3. The locking grooves 26 of the nut 19 engage with the soft packing washer 21 and lock the nut and make a tight joint.

What I claim is:

In a spark plug, the combination, with a plug body having a gas chamber in its inner end portion, of a core of insulating material secured in the plug body and provided with a conical portion which projects partway through the said chamber, a rod secured in the core and provided with a conical collar which forms a continuation of the said conical portion and

having also a portion projecting from the apex of the collar on the axis of the gas chamber, and a terminal secured to the plug body and having one end portion arranged parallel to the projecting portion of the said rod inside the said chamber and forming a spark gap with it.

In testimony whereof I have affixed my signature in the presence of two witnesses.

HILARY F. WHALTON.

Witnesses:
J. N. FOGARTY,
E. W. RUSSELL.