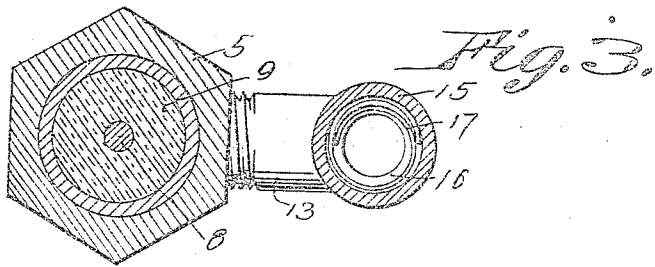
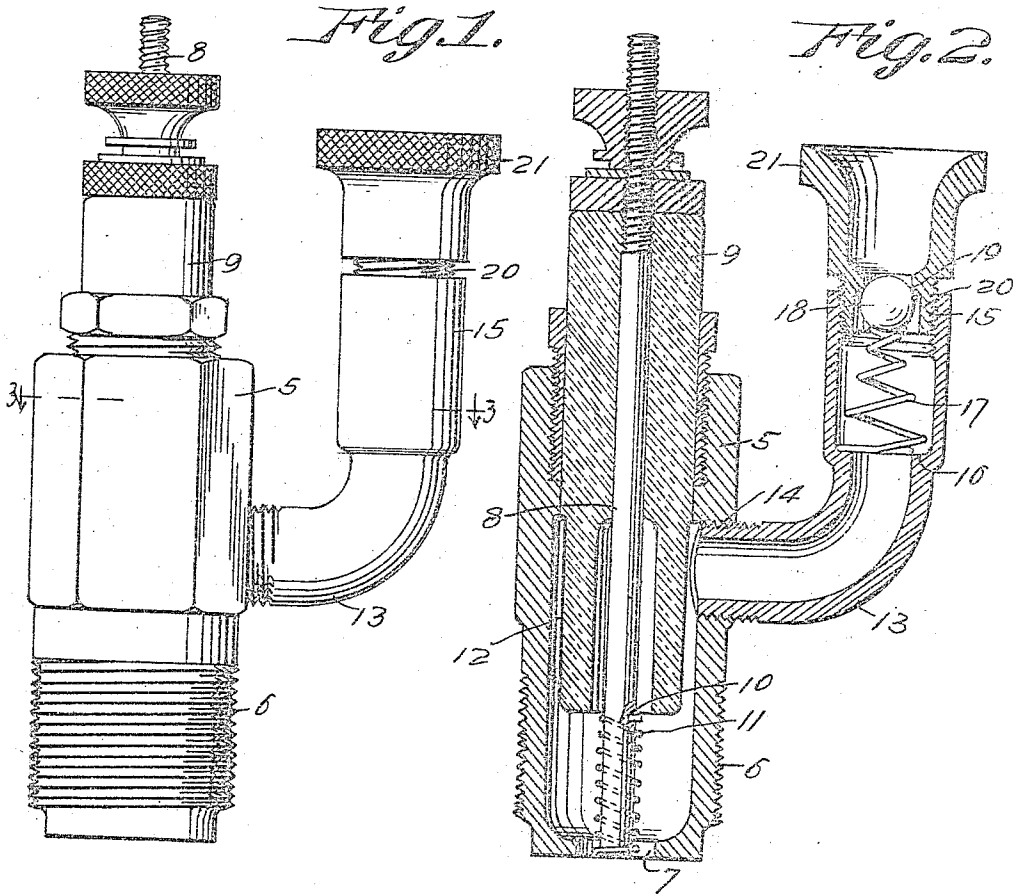


J. O. BROCK.  
 SPARK PLUG.  
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1,266,205.

Patented May 14, 1918.



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# UNITED STATES PATENT OFFICE.

JOHN O. BROCK, OF WILMINGTON, NORTH CAROLINA.

## SPARK-PLUG.

1,266,205.

Specification of Letters Patent.

Patented May 14, 1918.

Application filed March 9, 1916. Serial No. 88,070.

*To all whom it may concern:*

Be it known that I, JOHN O. BROCK, a citizen of the United States of America, and resident of Wilmington, in the county of New Hanover and State of North Carolina, have invented certain new and useful Improvements in Spark-Plugs, of which the following is a specification.

This invention relates to spark plugs for internal combustion motors and has for its object the provision of novel means for admitting air, gasolene or other fuel to the cylinder through the spark plug, means being provided whereby the air or the fuel so admitted may be heated prior to its arrival in the cylinder; it having been found in practice that the device is effective to increase the efficiency of motors with a given quantity of fuel.

A further object of this invention is to provide a spark plug having an electrode with a superimposed wire of relatively high resistance which will heat under the influence of the electric current passing through the conductor or electrode, thus making it possible to raise the temperature of the air or fuel passing through the spark plug into the cylinder.

With the foregoing and other objects in view, the invention consists in the details of construction, and in the arrangement and combination of parts to be hereinafter more fully set forth and claimed.

In describing the invention in detail, reference will be had to the accompanying drawings forming part of this specification wherein like characters denote corresponding parts in the several views, and in which—

Figure 1 illustrates a view in elevation of a spark plug with a primer embodying the invention;

Fig. 2 illustrates a vertical sectional view; and

Fig. 3 illustrates a sectional view on the line 3—3 of Fig. 1.

In these drawings 5 denotes the body of the spark plug which is externally threaded at 6 for application to the cylinder and the bottom portion of the body has a restricted opening 7, the wall of which constitutes a terminal to which the spark jumps from the electrode 8, which electrode extends through an insulating material or porcelain 9 as in spark plugs now in common use. The means for holding the electrode in the body and

the bind screw which may be of any appropriate type are not described in detail.

The electrode 8 near its lower end has a seat 10 forming an anchorage for the wire 11 which wire is coiled around the electrode toward the lower end thereof so that the said wire will become heated each time circuit is established through the ignition system or the contact of the ignition system to which the plug is electrically connected.

In practice, it has been possible for the inventor to utilize products of hydro-carbon oils with specific gravities greater than that of gasolene and that result has been attained by reason of the fact that provision is made for raising the temperature and vaporizing the said products by heat.

There is an annular channel 12 between the side of the porcelain or insulator 9 near the bottom thereof and the internal wall of the body and this annular channel affords space for the circulation of the air or fuel delivered to the spark plug.

As a means for delivering oil to the interior of the body of the spark plug, a curved tube 13 is tapped in the wall of the said body at 14 and the upper end of said tube is internally threaded as at 15. Below the threaded portion of the said tube, there is a shoulder 16 forming a seat for a spring 17, which spring yieldingly supports a ball 18, which ball constitutes a valve for controlling the ingress of air or fuel. The ball 18 coacts with a valve seat 19 formed at the junction of the nipple 20 and the cup 21 and as the cup is rotated, the threads of the nipple engage the threads of the tube and the pressure on the spring 17 is increased or diminished according to the direction of the rotation. By reason of the presence of the adjusting means just described, the ball valve 18 and the parts with which it is associated may be adjusted so that it will yield to the influences of internal combustion motors of different capacities; that is to say, it may be adjusted to yield where the compression in the cylinders is of increased or diminished degrees, thus making the spark plug adaptable, as stated, to the different conditions of use.

I claim:

In a spark plug, a body having a guarded opening in one side for delivery of fuel, an insulator extending partially through the body, an electrode in the insulator project-

ing to a point near the end of the body, a  
coiled wire encircling the electrode at the  
lower end thereof, the lowermost convolu-  
tion of the wire being in proximity to the  
5 wall of the body for conducting the current  
for producing a spark in the gap between  
the wire and said body.

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

JOHN O. BROCK.

Witnesses:

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