

W. S. THOMAS.
SPARK PLUG ELECTRODE.
APPLICATION FILED FEB. 23, 1918.

1,359,767.

Patented Nov. 23, 1920.

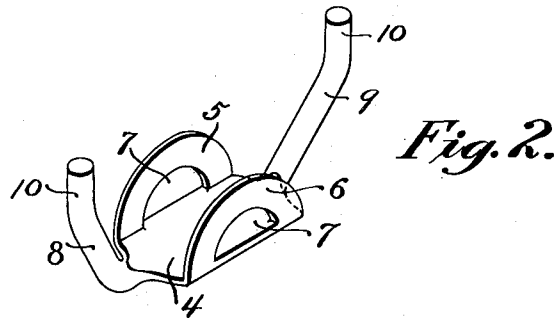
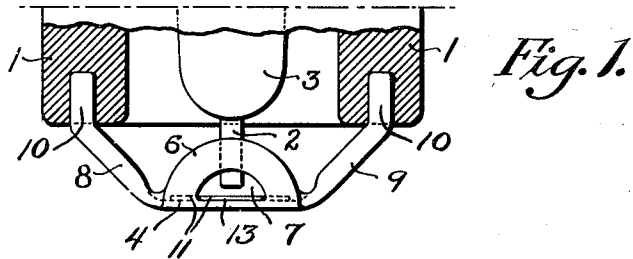


Fig. 3.

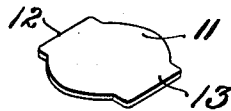
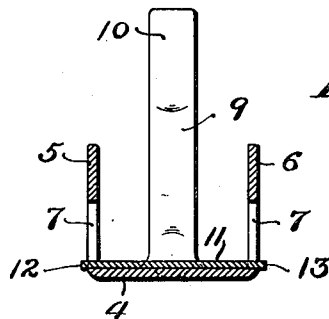


Fig. 4.



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UNITED STATES PATENT OFFICE.

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SPARK-PLUG ELECTRODE.

1,359,767.

Specification of Letters Patent.

Patented Nov. 23, 1920.

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To all whom it may concern:

Be it known that I, WILLIAM S. THOMAS, a citizen of the United States, residing at Lock Haven, in the county of Clinton and State of Pennsylvania, have invented certain new and useful Improvements in Spark-Plug Electrodes, of which the following is a specification.

One object of my invention is to provide an electrode which will be particularly adapted for use as a ground electrode for internal combustion engine spark plugs and which will be so constructed as to prevent what is known as pre-ignition of the gases within the engine cylinder.

Another object is to so construct my invention that it will present a large striking surface for the current or spark.

A further object is to so make my improved electrode as to prevent the current, due to high voltage, from driving or moving the sparking portions of the electrodes from their original setting.

A still further object of my invention is to permit the sparking portions of the electrodes to be definitely set without the requirement of a gage or without requiring the portions to be bent while being set, as is usually the custom with electrodes of the above type made prior to my invention.

Another object is to so construct my invention that it can be quickly and cheaply made and attached to spark plugs of various styles and types.

These objects, and other advantageous ends which will be described hereinafter, I attain in the following manner, reference being had to the accompanying drawings in which—

Figure 1 is a fragmentary elevation partly in section showing my improved electrode attached to a spark plug,

Fig. 2 is a perspective view of my improved electrode,

Fig. 3 is a perspective view of a wafer which forms a part of my invention and which can be easily inserted within the electrode shown in Fig. 2 so as to vary the sparking gap to suit various requirements, and

Fig. 4 is a transverse section of my improved electrode showing the above mentioned wafer in position.

Referring to the drawings, 1 represents the metallic body portion or casing of a

spark plug, and 2 represents the removable electrode which has an insulator 3 thereon. The above mentioned portions may be of any particular type, such for example as in various spark plugs now in common use.

My improved electrode comprises a plate 4 having two upturned flanges 5 and 6. These flanges are spaced apart and are provided with openings 7, said openings extending to the top surface of the plate 4. Two legs 8 and 9 project upwardly at a flared angle from opposite ends of the plate 4 and the extreme upper end portions 10 of these legs are bent so as to extend substantially vertical. These end portions 10 are adapted to be inserted within the body portion 1 of the spark plug, as clearly shown in Fig. 1. The plate 4, flanges 5 and 6, and legs 8 and 9 are preferably made integral and can be readily produced from a single length of wire which can be flattened between its ends to produce the plate and bent to provide the flanges 5 and 6. At the same time that the wire is flattened the openings 7 can be produced by punching holes therein and when the flanges are bent into the shape shown in the drawing, the openings will be in alinement with each other.

The removable electrode 2 is adapted to extend downwardly between the flanges 5 and 6 and the spark will be produced, by supplying current in the usual manner, between the bottom of the removable electrode 2 and the plate 4.

The angular disposition of the legs 8 and 9 prevents the leg portions from being inserted too far into the body portion 1 of the spark plug since said angular portion of the legs will engage the bottom of the spark plug and thereby serve as a gage for the electrode.

When it is desired to vary the distance between the electrodes I provide thin metallic plates or wafers 11 which are preferably made of extremely thin metal and have tongues 12 and 13 extending therefrom. These wafers can be placed upon the plate 4 so that the tongues 12 and 13 project through the openings 7, as clearly shown in Figs. 1 and 4. While I have illustrated but one of these wafers it will be noted that a number can be employed if desired.

The plate 4 is preferably made extremely thin so that it can quickly cool between the explosions of the gas within the engine cyl-

inder. Thus pre-ignition is practically impossible. By providing the flanges 5 and 6 the plate 4 is strengthened and by providing the openings 7 it is possible to see there-
5 through and if necessary to insert a tool for cleaning purposes or the like, the tool can be inserted through the openings 7.

The legs 8 and 9 by being positioned as above described, provide a strong support
10 for the plate 4 so that it is practically impossible to displace the original setting of the plate 4 during the operation of the engine.

While I have described my invention as
15 taking a particular form, it will be understood that the various parts of my invention may be changed without departing from the spirit thereof, and hence I do not limit myself to the precise construction set forth, but
20 consider that I am at liberty to make such changes and alterations as fairly come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. An electrode made of a single piece of wire flattened between its ends to a thickness which is thinner than said ends to produce a sparking surface, the opposite ends of
30 said wire forming terminals for attachment to a spark plug, substantially as described.

2. An electrode made of a single piece of wire flattened between its ends to produce a sparking surface, the opposite ends of said wire forming terminals for attachment to a
35 spark plug, said flattened sparking portion having substantially parallel flanges thereon bent at an angle to the plane of said sparking portions and having free upper edges, substantially as described. 40

3. An electrode having a plurality of legs adapted for engagement with a spark plug; and a plate extending between and supported by said legs, said plate having flanges
45 thereon, spaced apart, said flanges having openings therein to permit view and access to the space between the flanges, substantially as described.

4. An electrode made of a single piece of wire flattened between its ends to produce a
50 solid portion whereby said solid flattened portion provides a sparking surface and also forms a baffle to prevent oil or other material from directly engaging said sparking surface; substantially as described. 55

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM S. THOMAS.

Witnesses:

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