

G. L. HERZ.
SPARK PLUG.
APPLICATION FILED NOV. 2, 1917.

1,361,580.

Patented Dec. 7, 1920.

Fig. 1.

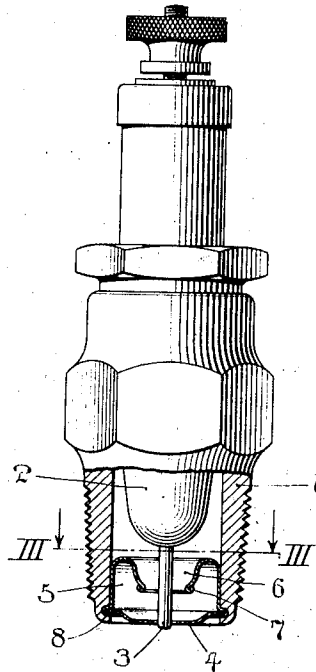


Fig. 2.

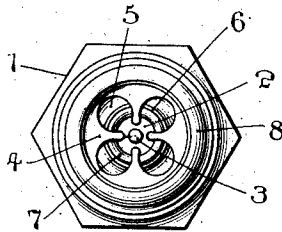


Fig. 3.

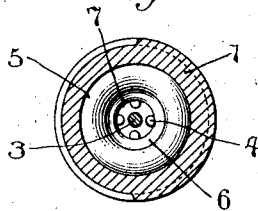


Fig. 4.

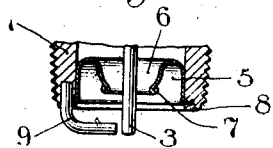
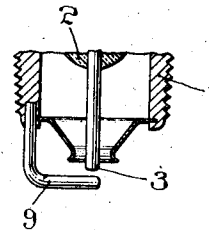


Fig. 5.



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SPARK-PLUG.

1,361,580.

Specification of Letters Patent.

Patented Dec. 7, 1920.

Application filed November 2, 1917. Serial No. 199,848.

To all whom it may concern:

Be it known that I, GUSTAVE L. HERZ, a citizen of the United States, and resident of the borough of Manhattan, in the city and State of New York, have invented a new and useful Improvement in Spark-Plugs, of which the following is a specification.

The object of my invention is to provide novel means to prevent the short-circuiting of a spark plug by oiling or sooting up, said means including an oil and soot guard, as for instance a metal disk, located at a distance inwardly from the sparking points of the electrodes and between the sparking points and insulator.

My invention more specifically includes a cup-shaped disk located within the spark plug shell and having a concavo-convex bottom surrounding the center electrode. The space between the inner edge of the guard and the center electrode should be greater than the space between the sparking points of the electrodes so as to preclude the possibility of the spark forming between the center electrode and the guard.

Practical embodiments of my invention are represented in the accompanying drawings in which,

Figure 1 represents a spark plug of one type, partly in side elevation and partly in longitudinal central section, with my invention applied thereto.

Fig. 2 is an end view of the plug, and

Fig. 3 is a cross section taken in the plane of the line III—III of Fig. 1.

Fig. 4 is a detail longitudinal central section of another form of plug with my invention applied thereto, and

Fig. 5 is a detail longitudinal section showing another embodiment of my invention.

In the form shown in Figs. 1, 2 and 3, the spark plug shown is denoted by 1, the insulator by 2, the center electrode by 3 and the disk shell electrode by 4. These parts may be of well known or approved form.

In the forms shown in Figs. 1 to 4 inclusive, the oil and soot guard is located within the shell at a distance inwardly from the sparking points of the electrodes, and is shown as comprising a cup-shaped disk having a concavo-convex bottom directed toward the sparking points and surrounding the center electrode 3 and spaced there-

from a greater distance than the spark gap at the sparking points of the electrodes. The inner edge of the guard is preferably beaded as shown at 7, to still further prevent any liability of the spark gap forming at this point. The outer edge of the guard is shown as united to the outer edge of the shell disk electrode 4, and the so united outer edges are shown as secured to the shell by crimping over the end 8 thereof.

In the form shown in Fig. 4, a bent rod 9 forms the shell electrode instead of the disk 4 as shown in the other figures. In this form the outer edge of the oil and soot guard is secured to the end of the shell by crimping the same over the outer edge of the guard.

In the form shown in Fig. 5, the oil and soot guard is of a slightly different form and is located exterior to the shell but still at a distance inwardly from the sparking points and between the sparking points and insulator.

The location of this oil and soot guard at a distance inwardly from the sparking points of the electrodes and between the sparking points and insulator, serves to prevent the deposit of the oil and soot along the walls of the shell and the walls of the insulator, thus preventing the short circuiting of the plug from this cause and prolonging the effective life of the plug.

It is obvious that the forms of guard which I have chosen to illustrate are only two of many forms which it might assume, without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the particular forms herein shown, but—

What I claim is:

1. In a spark plug, a cup-shaped metal disk located within the spark plug shell between the inner end of the insulator and the sparking points of the electrodes, said disk having a concavo-convex bottom surrounding the center electrode, the inner edge of the disk being beaded and spaced a greater distance from the center electrode than the distance between the sparking points.

2. In a spark plug, a cup-shaped metal disk located within the spark plug shell between the inner end of the insulator and the sparking points of the electrodes, said disk surrounding the center electrode, the inner edge of the disk being spaced a greater

distance from the center electrode than the distance between the sparking points, the shell electrode comprising a metal disk located at the inner end of the shell.

- 5 3. In a spark plug, a cup-shaped metal disk located within the spark plug shell between the inner end of the insulator and the sparking points of the electrodes, said disk surrounding the center electrode, the
10 inner edge of the disk being spaced a greater distance from the center electrode than the distance between the sparking points, the shell electrode comprising a metal disk located at the inner end of the shell, the outer
15 edge of the cup-shaped metal disk being permanently united to the outer edge of the shell disk electrode.

4. In a spark plug, a cup-shaped metal

disk located within the spark plug shell between the inner end of the insulator and the sparking points of the electrodes, said disk surrounding the center electrode, the inner edge of the disk being spaced a greater distance from the center electrode than the distance between the sparking points, the shell electrode comprising a metal disk located at the inner end of the shell, the outer edge of the cup-shaped metal disk being permanently united to the outer edge of the shell disk electrode, and the outer edge of the shell being crimped over the so united edges to secure the two disks to the shell.

In testimony, that I claim the foregoing as my invention, I have signed my name this 26th day of October, 1917.

GUSTAVE L. HERZ.