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1,491,752

C. V. RICHEY

SPARK PLUG

Filed Jan. 21, 1924

Fig. 1.

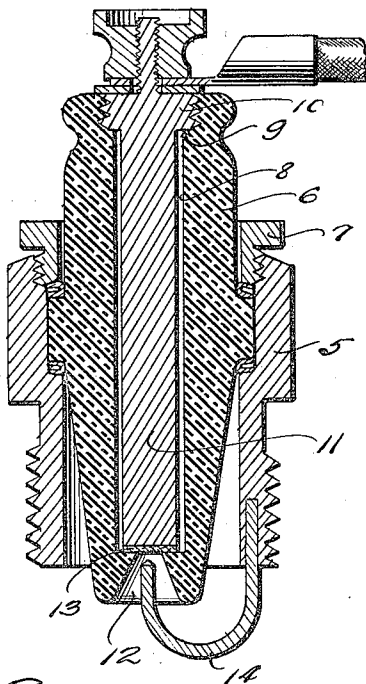


Fig. 2.

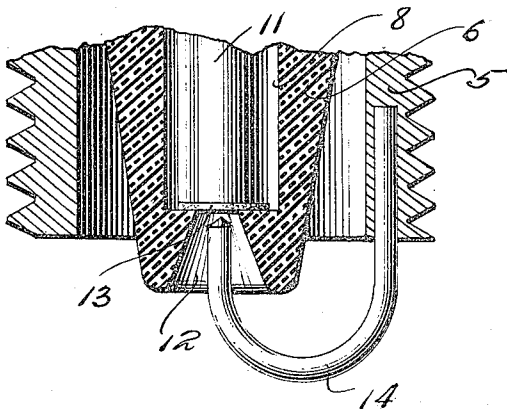
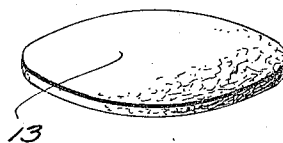


Fig. 3.



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CHARLES V. RICHEY, OF NEW YORK, N. Y.

SPARK PLUG.

Application filed January 21, 1924. Serial No. 687,656.

To all whom it may concern:

Be it known that I, CHARLES V. RICHEY, a citizen of the United States, residing at New York city, in the county of New York, State of New York, 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 explosive engines and it has for its object to provide means for preventing short circuiting of the porcelain carried electrode, by sooting.

Generally stated, the object is accomplished by completely encasing the porcelain carried electrode, the casing including a body of material of sufficient porosity to permit of ready passage of the high potential spark current through it and thence across the air gap at its outer surface, to the ground electrode.

In the drawings:

Figure 1 is a central section taken longitudinally through a spark plug embodying the present invention.

Figure 2 is an enlarged detail sectional view through the outer end portion of the porcelain and the adjacent part of the casing of the spark plug, with the electrodes and the protecting diaphragm in elevation.

Figure 3 is a detail perspective view of the protecting diaphragm.

Referring now to the drawings there is shown a spark plug comprising the usual casing 5 in which is held a porcelain 6 through the medium of a clamping nut 7 in the usual manner.

The porcelain 6 has a central longitudinal bore 8 which at the upper or outer end of the porcelain is enlarged, as shown at 9 and provided with threads to receive the correspondingly threaded portion 10 of an electrode, the lower portion of which is of reduced diameter as shown at 11 and continues to near the opposite end of the porcelain, through which reduced bore portion, and with the wall of which it is in spaced relation. The enlarged portion 9 of the

bore of the porcelain is provided with a filling of cement about the corresponding part of the electrode, to prevent any leakage.

The lower end of the porcelain 6 is cupped as shown at 12, the cup communicating initially with the bore of the porcelain and in the bottom of this bore, closing the end of the porcelain and against the extremity of the electrode 11, is disposed a thin disk 13 of asbestos, or other porous and refractory material that positively excludes from the electrode 11 all foreign matter, such as carbon or soot or oil.

In the end of the casing 5 is one end of an arched ground terminal 14 the center of which enters the cup 12 in close relation to the wall of it and terminated a slight distance from the disk 13.

In practice, the spark gap between the terminal of the electrode 13 and the terminal of the electrode 14 is represented by the thickness of the disk 13 plus the air gap between it and the terminal 14.

In practice, the disk 13 protects the electrode 11 from accumulation of foreign matter while the spark passes readily through the disk 13 to the terminal 14 with ignition of the gas within the cup, which then passes as a sheet of flame downwardly to ignite the charge below. It is further found in practice that any particles of foreign matter that may have lodged upon the disk 13 are volatilized by the spark or are blown away by the force of the explosion so that an accumulation of such matter on the diaphragm is prevented.

What is claimed is:

1. A spark plug having an electrode, the sparking terminal of which is entirely encased, and a second electrode exterior to the casing and spaced therefrom, the casing between the electrodes being susceptible to passage of an electric spark through it.

2. A spark plug having an electrode, the sparking terminal of which is entirely encased, and a second electrode exterior to the casing and spaced therefrom, the casing between the electrodes being porous for passage of an electric spark through it.

3. A spark plug having an electrode, the sparking terminal of which is entirely en-

cased, and an electrode exterior to the casing and spaced therefrom, the casing between the electrodes being of asbestos.

4. A spark plug having an electrode, the sparking terminal of which is entirely encased, and an electrode exterior to the casing and spaced therefrom, the casing between the electrodes being reentrant and receiving the exterior electrode, and the por-

tion of the casing between the sparking terminals of the electrodes being susceptible to passage of an electric spark through it. 10

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

CHARLES V. RICHEY.

Witnesses:

RALPH P. PHILLIPS,
EDWIN P. PHILLIPS.