J. L. DRAKE.

SPARK PLUG.

APPLICATION FILED OCT. 27, 1919.

1,367,361. Patented Feb. 1, 1921.

Fig. 1.

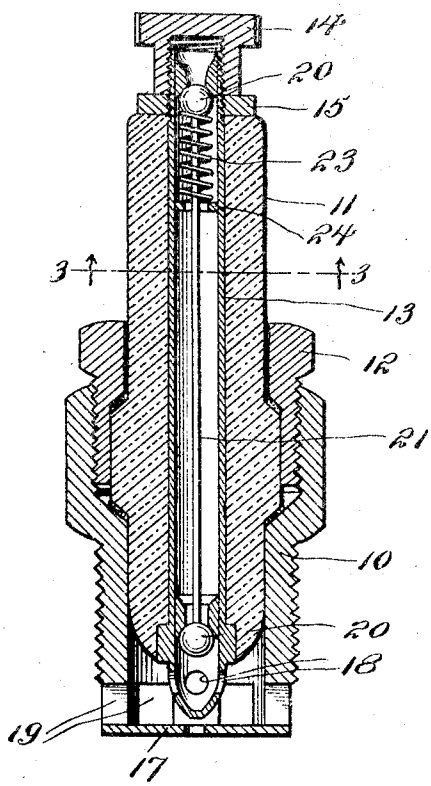


Fig. 2.

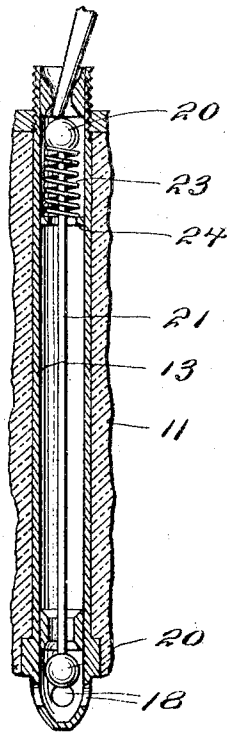
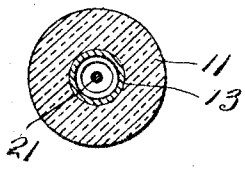


Fig. 3.



Witnesses

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JAMES LEWIS DRAKE, OF BANGOR, MICHIGAN.

SPARK-PLUG.

1,367,361. Specification of Letters Patent. Patented Feb. 1, 1921.

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To all whom it may concern:

Be it known that I, JAMES L. DRAKE, a citizen of the United States, residing at Bangor, in the county of Van Buren and State of Michigan, have invented new and useful Improvements in Spark-Plugs, of which the following is a specification.

This invention relates to spark plugs, and has for its primary object the provision of a construction whereby the motor may be primed through the plugs, instead of through the pet cocks, priming direct on the points of the plug which insures good results.

To this end the invention provides the plug with an electrode of hollow formation closed at one end by means of a removable cap to prevent dirt or other foreign matter from entering the electrode, the priming agent being poured through the electrode when the occasion requires. The construction is also advantageous for cleaning the points of the plug without removing the same from the motor casing, which can be done by pouring kerosene or some other decarbonizer through the electrode.

In addition to these features, the invention makes use of a duplex valve arranged within the electrode and normally seated, the valve prohibiting the admittance of combustible mixture into the electrode, and thus eliminating danger of explosion within the plug.

The nature and advantages of the invention will be better understood when the following detail description is taken in connection with the accompanying drawing, the invention residing in the construction, combination and arrangement of parts as claimed.

In the drawing forming part of this specification like numerals of reference indicate similar parts in the several views and wherein:

Figure 1 is a vertical sectional view through the plug showing the normal position of the valves.

Fig. 2 is a fragmentary section showing the valves unseated.

Fig. 3 is a transverse sectional view taken on line 3—3 of Fig. 1.

Referring to the drawing in detail 10 indicates the body or casing of the plug, while the sleeve of porcelain or other non-conducting material is indicated at 11 and partly fitted within the casing 10 in the usual well known manner. The sleeve 11 is held within the casing by means of the lock nut 12. The main electrode 13 is of hollow tubular formation and projects beyond the sleeve 11 at both ends thereof. The upper end of the electrode is threaded to accommodate a cap 14, which closes this end of the electrode and prevents dirt and other foreign matter gaining access thereto. A metallic washer 15 surrounds this end of the electrode and is interposed between the cap and the adjacent end of the sleeve 11. The lower end of the electrode is substantially cone-shaped and terminates immediately above the electrodes 17. The cone-shaped extremity is provided with a plurality of openings 18 through which the priming or cleaning agent passes when poured into the hollow electrode at the upper end thereof. By reason of this construction, it is manifest that the motor can be primed through the electrode 13 directly on the points of the plug, which insures good results, in contradistinction to the well known method of priming the motor through the pet cocks. As hereinabove stated, the plug may also be cleaned by pouring a cleaning agent through the electrode, in contradistinction to the customary method of removing the plug from the motor casing. It will be noted that the lower end of the body or casing 10 is provided with recesses 19 to permit the combustible mixture to come in direct contact with the points of the plug, the main electrode 13 terminating in a plane above the bottom of the casing 10.

For the purpose of preventing the admittance of combustible mixture into the main electrode 13, I make use of a duplex valve as shown in Fig. 1. The valves 20 are connected by means of a stem 21 and normally engage their respective seats 22 by means of a spring 23 which encircles the stem 21, bearing against one of the valves and a shoulder 24 formed in the electrode 13. In practice, when it is desired to prime the motor, or clean the points of the plug, the cap 14 is removed and the spout of the can containing the priming or cleaning agent is introduced into the upper end of the electrode and pressed against the adjacent valve 20. In this manner both the valves are unseated and moved into the relatively large portions of the electrode so that the cleaning or priming agent introduced into the electrode, will flow therethrough and

through the openings 18. When the spout of the can is removed from the electrode 13, the spring 23 functions to simultaneously seat the valves.

While it is believed that the nature and advantages of the invention will be apparent from the foregoing description I desire to have it understood that I do not limit myself to the exact construction herein disclosed, and that such changes may be resorted to when desired as fall within the scope of what is claimed.

What is claimed is:

1. A spark plug comprising a casing, an insulating sleeve associated with the casing, a hollow electrode arranged within the sleeve and projecting beyond the ends thereof, a cap closing one end of the electrode, the opposite end of the electrode being substantially cone-shaped and provided with a plurality of openings, and an electrode carried by the casing.

2. A spark plug comprising a casing, an insulating sleeve associated with the casing, a hollow electrode arranged within the sleeve and projecting beyond the ends thereof, a cap closing one end of the electrode, the opposite end terminating in a plane above the lower end of the casing and having a plurality of apertures, said lower end of the casing having recesses, and an electrode carried by said casing.

3. A spark plug comprising a casing, an insulating sleeve associated therewith, a hollow electrode arranged within the sleeve and projecting beyond the ends thereof, a cap closing one end of the electrode, the opposite end having a plurality of apertures, and a normally seated valve arranged within the electrode immediately above said apertures for the purpose specified.

4. A spark plug comprising a casing, an insulating sleeve associated with the casing, a hollow electrode arranged within the sleeve, means closing one end of the electrode, the opposite end having a plurality of apertures, an electrode carried by the casing, valves arranged within the hollow electrode, a stem connecting said valves together, and resilient means for normally holding said valves seated.

In testimony whereof I affix my signature.

JAMES LEWIS DRAKE.