W. J. O'GORMAN.

ATTACHMENT FOR SPARK PLUGS.

APPLICATION FILED MAY 11, 1918.

1,343,372. Patented June 15, 1920.

Fig. 1.

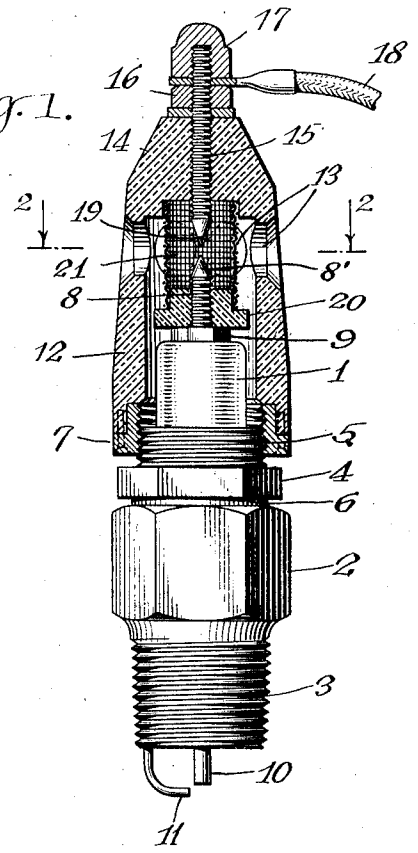


Fig. 2.

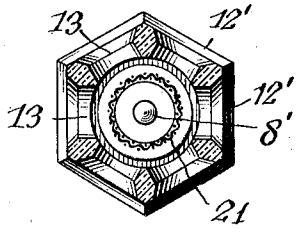
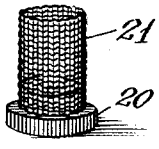


Fig. 3.



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WILLIAM J. O'GORMAN, OF NEW YORK, N. Y.

ATTACHMENT FOR SPARK-PLUGS.

1,343,372. Specification of Letters Patent. **Patented June 15, 1920.**

Application filed May 11, 1918. Serial No. 233,830.

To all whom it may concern:

Be it known that I, WILLIAM J. O'GORMAN, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Attachments for Spark-Plugs, of which the following is a specification.

My invention relates to spark plugs and has for its object the production of a simple, inexpensive and compact attachment therefor which may be easily and expeditiously attached to or detached from a spark plug of the standard or conventional type and by means of which the efficiency of the plug and the strength of the spark is materially increased.

Other and further objects of my invention will appear from the following description, the invention consisting in the novel parts and combinations of parts hereinafter more particularly described and then specified in the claims.

In the accompanying drawing:

Figure 1 is a vertical central section taken through my improved attachment showing it attached to a standard or conventional type of spark plug the said spark plug being shown in elevation.

Fig. 2 is a horizontal cross-section taken on the line 2—2 of Fig. 1.

Fig. 3 is a perspective view of the detachable artificial spark gap guard.

Referring more particularly to the several figures of the drawing:

1 indicates the insulating body preferably made of porcelain of a standard or conventional type of spark plug which is adapted to be received by a metal body or shell 2 of the plug provided with the usual screw-thread 3 for attachment of the plug to the engine. The said insulating body is clamped securely within the shell to prevent withdrawal therefrom by the clamping nut 4 provided with upper and lower screw-threaded sleeves 5 and 6 respectively the lower sleeve 6 being adapted to engage the screw-threaded inner surface of the shell 2 and upper sleeve 5 being adapted to engage the screw-threaded inner surface of a metallic fastening or supporting plate 7.

8 indicates the usual lead wire or conducting rod extending longitudinally through the insulating body 1 and held adjacent its upper end or point 8′ by the adjustable nut 9. The lower end or point 10 of the lead wire 8 constitutes, in conjunction with the end of the return wire 11, the normal ignition gap as is well known in the standard or conventional type of plug.

12 indicates a hollow insulating body or cap having a plurality of sides or walls 12′ (see Fig. 2), preferably eight in number, although the invention is not necessarily limited to eight sides or to any specific number. The said insulating body is fastened to the supporting plate 7, which forms a part thereof, by screws or other suitable means and each of the sides or walls 12′ is provided with an observation opening 13 as indicated.

14 indicates a solid head of said insulating body 12 in which is embedded the main or terminal wire or rod 15, preferably in vertical alinement with the lead wire or rod 8. The rod 15 is held in position by a suitable nut 16 and carries at the upper end thereof the usual binding screw 17 for attachment of the leading in wire 18. The main or terminal wire or rod 15 extends downwardly beyond the head 14 and terminates at its lower end in point 19 a slight distance from the point 8′ of the lead wire or rod 8.

In the usual operation of the device the circuit of the plug is from the leading in wire 18 to the main or terminal wire or rod 15 across the artificial spark gap formed by points 19, 8′ to the lead wire or rod 8, and across the normal ignition gap formed by the lower end or point 10 of the lead wire or rod 8 and the end of the return wire 11, By including in the circuit an artificial spark gap in this case formed by the points 19 and 8′, the strength of the ignition spark is materially increased thereby increasing the efficiency of the plug, as is obvious. By means of the observation openings 13 through which the artificial spark gap can be seen, it can be ascertained by visual inspection as to whether the device is functioning properly.

To prevent the ignition of gas outside of the plug from the spark of the artificial spark gap, I have provided a guard for the artificial spark gap comprising an annular insulating base 20 having attached thereto an elongated annular frame 21 made of wire gauze or any translucent material. The said insulating base is provided with a hole in the center thereof adapted to receive and be supported by the lead wire or rod 8 so that said base will contact with and be carried by the nut 9. The upper end of said

annular frame 21 fits within a recess cut or formed in the head 14 of the insulating body 12, as illustrated, so that the guard is firmly and securely supported at either end thereof thereby insuring it against displacement from its normal position and permitting it to effectively perform its function hereinbefore explained.

My improved attachment is particularly desirable because of the simplicity of its construction and for the reason that it may be attached to any standard or conventional type of spark plug without alteration of the plug itself.

What I claim as my invention is:—

1. In combination with a standard spark plug having an insulating body held in a metal shell by a removable nut and a single conducting wire extending through the insulating body, a screw-threaded cap detachably secured directly to the nut and inclosing the outer end of the insulating body and a main wire carried by said cap and forming with the conducting rod of the spark plug an artificial gap.

2. In combination with a standard spark plug having an insulating body held in a metal shell by a removable nut provided with an upper exteriorly threaded flange and a single conducting rod extending through the insulating body, a hollow cap having an interiorly threaded lower end detachably secured to the threaded flange of the nut and inclosing the outer end of the insulating body, a main wire carried by said cap and forming with the conducting rod of the spark plug an artificial spark gap, said cap being provided with openings whereby the artificial spark gap may be observed.

3. In combination with a standard spark plug having a single conducting rod extending longitudinally therethrough, a hollow cap detachably secured to said spark plug, a solid insulating head forming a part of said cap and provided with a recess therein, a main wire embedded in said head and extending within said cap and forming with said conducting rod an artificial spark gap, and a removable guard for said artificial spark gap comprising a base provided with a hole therein and an annular frame attached to said base, said guard being mounted on the spark plug with the single conducting rod extendnig through the hole in the base of the guard and the top of the annular frame thereof extending upwardly within the recess in the solid head of the cap, said insulating body being provided with openings through which the artificial spark gap may be observed.

Signed at New York, in the county of New York and State of New York, this 10th day of May A. D. 1918.

WILLIAM J. O'GORMAN.

Witnesses:
F. B. TOWNSEND,
W. R. WARNER.