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HIGH FREQUENCY SPARK PLUG

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INVENTOR

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This invention relates to improvements in spark plugs and more particularly to means associated therewith to insure a high frequency spark. One object of the invention being to provide an electrical condenser which shall be of such size as to be carried by and in effect constitute part of the spark plug structure and at the same time which shall maintain its stability and efficiency when included in the secondary circuit of a sparking system and result in maintaining sparks of high frequency at the sparking terminals of the plug.

With this and other objects in view, the invention consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claim.

The accompanying drawing is a view showing an embodiment of my invention.

1 represents the base portion of a spark plug which is threaded for connection with an engine cylinder and carries one of the sparking terminals 2 as is customary in spark plug constructions. A porcelain sleeve 3 enters the plug base and made with a flange 4 to rest upon a shoulder 5, said sleeve being secured in place by a bushing 6 which is threaded into the upper end of the plug base and engages the flange 4.

The porcelain sleeve is made sufficient in length to pass through the inner metal cylinder 7 of a condenser 8 superimposed upon the bushing 6 of the plug. A rod 9 extends through the porcelain sleeve 3 and projects above and below the same—the lower end portion of said rod depending also below the lower end of the plug base 1 and constituting a sparking terminal 10 for cooperation with the sparking terminal 2, and the upper end of said rod is threaded to receive a nut 11 and form a binding post.

The condenser 8 comprises a plurality of metal cylinders separated by insulating material. In the drawing I have shown four such cylinders, 7, 7', 7'' and 7'', separated by cylinders of high insulating material 12. The upper ends of the alternate cylinders 7, 7'' are electrically connected by a connector 13, and the lower ends of the alternate cylinders 7' and 7'' are electrically connected by a connector 14.

A metal ring or washer 15 is located upon the condenser structure and is in electrical contact with the connector 13, and a nut 16 is screwed on the threaded upper end of the rod 9 and cooperates with the nut 11 to bind the terminal of a wire 17 from the secondary of a spark coil or magnets (not shown) of a sparking system. In this manner one side of the condenser (viz., the cylinders 7 and 7'') is connected with the wire 17. The other side of the condenser (comprising the cylinders 7' and 7''), is connected with and grounded on the spark plug, through the medium of a metal ring or washer 18 resting upon the plug bushing 6 and electrically engaging the connector 14 which electrically unites the cylinders 7' and 7''.

With my improvements, I am enabled to so associate the condenser with the spark plug as to constitute, in effect, a part of the plug structure, and the construction is such as will permit a broken porcelain sleeve to be removed and replaced by a new one. The condenser is compact in construction and is such as will facilitate its connection with the body of the plug so as to constitute a part thereof, and said condenser, when connected in circuit, in parallel to the sparking terminals, will result in causing sparks of high frequency between the sparking terminals.

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

The improved high frequency spark plug consisting of a body having a sparking terminal at its lower end, an insulating sleeve inserted axially through the body, a bushing engaged in the upper end of the body and securing the insulating sleeve there, a conductor extending axially through the sleeve and constituting a sparking terminal at its lower end, a cylinder fitting snugly around the upper portion of the insulating sleeve, a second cylinder concentric with the first cylinder, the cylinders being free and open at their lower ends, electrical connection between the upper ends of the cylinders, concentric cylinders alternating with the first-mentioned cylinders, the last-mentioned cylinders being free and open at their upper ends, electrical connection between the lower ends of the last-mentioned cylinders, insulation filling the interiors of all the cylin-
ders, a ring resting on the bushing and in direct contact with the last-mentioned electrical connection, a ring resting on the first-mentioned electrical connection, a nut threaded on the upper end portion of the axial conductor and resting on the last-mentioned ring whereby to clamp the several cylinders to the bushing and the body and secure the axial conductor, and a second nut fitted on the axial conductor above the first nut to secure a conductor wire thereto.

In testimony whereof, I have signed this specification.

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