

June 23, 1925.

1,542,825

J. C. NEWTON

SPARK PLUG

Filed July 21, 1922

*Fig. 1.*

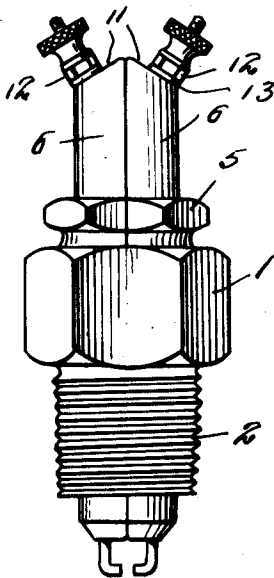


*Fig. 2.*

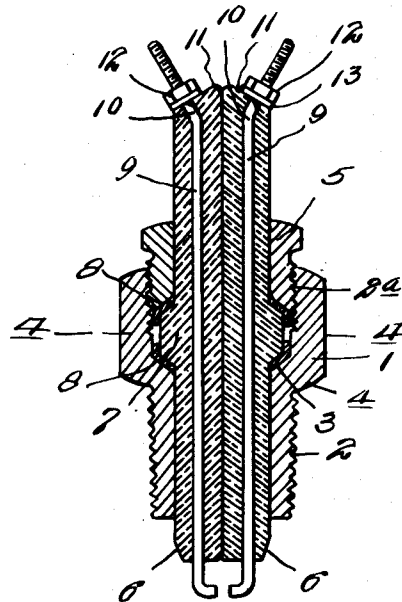


*Fig. 3.*

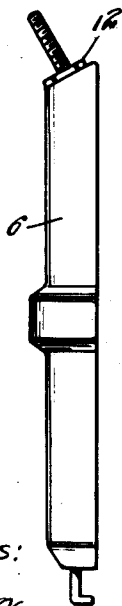
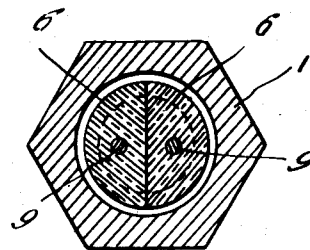


*Fig. 4.*



Witnesses:

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## UNITED STATES PATENT OFFICE.

JOHN C. NEWTON, OF MINNEAPOLIS, MINNESOTA.

## SPARK PLUG.

Application filed July 21, 1922. Serial No. 576,613.

*To all whom it may concern:*

Be it known that I, JOHN C. NEWTON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented new and useful Improvements in Spark Plugs, of which the following is a specification.

An object of the invention resides in providing a spark plug particularly adapted for internal combustion engines having removable insulator sections, which are interchangeable, and which carry the electrode, so that a plug structure is provided in which electrodes and insulators may be removed or interchanged and cleaned without removing the shell of the spark plug from the engine block.

Another object of the invention is to provide a spark plug of this character, wherein the parts are removable to permit easy cleaning of the parts as well as interchanging thereof, in order to change the relation of the sparking points of the electrodes, and a device which may be manufactured at a relatively small cost.

To the attainment of the foregoing, the invention consists in the improvement as hereinafter described and definitely claimed.

In the accompanying drawings, forming part of this specification:—

Figure 1 is a side elevation of a plug constructed in accordance with my invention.

Figure 2 is a diametrical section of the same.

Figure 3 is a detail elevation showing one dielectric member of the plug and its apertures.

Figure 4 is a transverse section taken in the plane indicated by the line 4—4 of Figure 2.

Similar numerals of reference designate corresponding parts in Figures 1 to 4 to which reference will first be made.

Among other elements my novel plug comprises a metallic bushing 1, exteriorly and interiorly threaded at 2 and 2\*, respectively, and interiorly and exteriorly shouldered at 3 and 4, respectively. The plug also comprises a locking nut 5 made in two semi-circular sections, Figure 1, and two dielectric members 6 of semi-circular cross-section and made by preference of mica for the sake of durability. At intermediate points in their length the dielectric members 6 are provided with exterior lateral projections 7, and

above and below said projections are arranged washers 8 of copper or other appropriate metal or alloy or other material, each of the said washers 8 being in two semi-circular sections. Secured in fixed manner in and extending longitudinally through the dielectric members 6 are electrodes 9. These electrodes protrude beyond the inner and outer ends of the members 6; the inner end portions of the electrodes being directed laterally inward and spaced apart to afford a spark gap, and the outer end portions of the electrodes being diverged as indicated by 10 and extended outwardly through the oppositely beveled outer ends 11 of the members 6 whereby short-circuiting between the outer end portions of the electrodes is precluded. The said electrode portions 10 are threaded as shown to receive nuts 12 for clamping wires against washers 13, mounted on the electrodes and opposed to the beveled ends of the dielectric members 6.

In virtue of the peculiar plug construction set forth it will be observed that when the locking nut 5 is turned out of the bushing 1, and the dielectric members 6 are withdrawn from the bushing, the said members 6 may be separated and if either member 6 or its electrode 9 is impaired, a new member 6 carrying an electrode 9 may be substituted for the impaired member. Again when the members 6 are removed from the bushing 1 and separated as stated, the said members 6 and their electrodes may be thoroughly cleaned with ease and expedition.

In the practical use of the plug described one of the electrodes 9 is electrically connected with one of the poles of a source of electric energy, and the other electrode is either electrically connected with the opposite pole of the source of energy or is appropriately grounded.

I have entered into a detailed description of the construction and relative arrangement of the parts embraced in the present and preferred embodiments of my invention in order to impart a full, clear and exact understanding of the said embodiments. I do not desire, however, to be understood as confining myself to the specific construction and relative arrangement of parts inasmuch as in the future practice of the invention various changes and modifications may be made such as fall within the scope of my invention as defined in my appended claim.

Having described my invention, what I claim and desire to secure by Letters-Patent, is:—

5 A spark plug structure comprising a bushing having an interiorly located annular shoulder disposed at an acute angle to the axis of the bushing, a pair of dielectric members mounted in the bushing and provided at their sides with projections having  
10 bevelled edges, each of said members being provided with a sparking electrode, said members having flat faces adapted to bear against each other and being located at the sides of the member opposite those sides at

which the projections are provided, and a 15 sectional gland nut screwed into the bushing and having a bevelled surface disposed opposite the projection, the parts being so assembled and arranged that when the nut is tightened in the bushing, the shoulder and 20 the bevelled surface of the nut cooperate with the bevelled surfaces of the projections whereby the flat faces of the dielectric members are forced in close contact with each 25 other.

In testimony whereof, I affix my signature.

JOHN C. NEWTON.