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L. HIRSCH

SPARK PLUG

Filed July 26, 1924

Fig. 1.

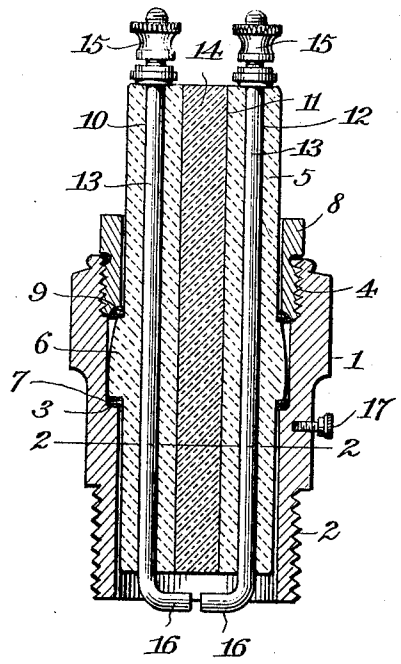
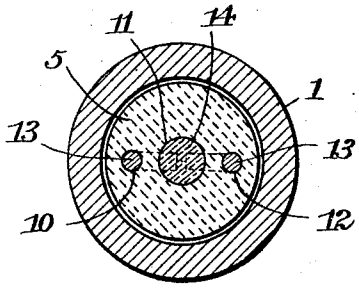


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

LOUIS HIRSCH, OF MESILLA PARK, NEW MEXICO.

SPARK PLUG.

Application filed July 26, 1924. Serial No. 728,409.

To all whom it may concern:

Be it known that I, LOUIS HIRSCH, a citizen of the United States, and a resident of Mesilla Park, in the county of Dona Ana and State of New Mexico, have invented a new and Improved Spark Plug, of which the following is a full, clear, and exact description.

This invention relates to improvements in spark plugs, an object of the invention being to so construct a spark plug that the spark is visible through a transparent portion of the plug, hence, a visible inspection may be had at all times to note whether or not the plug is functioning properly.

A further object is to provide a spark plug in which the bore is provided with a pair of insulated electrodes with terminals at the inner end of the core spaced apart forming a spark gap in line with a transparent plug fixedly located in the core so that the spark gap can be observed without removing the plug.

A further object is to provide a plug of this character in which the electrodes may be in a closed circuit, either a multiple arc or series, and capable of a wide range of utility in connection with various circuits and controls which are not permissible with the ordinary type of plug in which the circuit is grounded through the plug and engine.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts which will be more fully hereinafter described and pointed out in the claim.

In the accompanying drawings—

Figure 1 is a view in longitudinal section illustrating my improved spark plug;

Figure 2 is a view in transverse section on the line 2—2 of Figure 1.

1 represents the metal casing or jacket of my improved plug, which is externally threaded at its lower end, as shown at 2, to screw into the engine cylinder, as is common in the art. This casing or jacket 1 is hollow and formed with an internal annular shoulder 3 and is internally screw-threaded at its upper end, as indicated at 4. 5 represents the core of my improved plug, which is of porcelain or any other suitable insulating material, and is positioned within the casing 1 and is provided with an annular enlargement 6 between which and the shoulder 3 a packing ring or gasket 7, of any approved construction, may be located. 8 represents the nut which is screwed into the threaded end 4 of casing 1 with a packing ring or gasket 9 located between the inner end of the nut 8 and the enlargement 6 to securely hold the core in the casing and prevent leakage.

The core 5 is made with three parallel longitudinal openings or bores 10, 11 and 12, respectively. Electrodes 13 are located in the outer bores 10 and 12, and a transparent plug 14 is located in the central bore 11 which is appreciably larger than the bores 10 and 12. This transparent plug 14 may be of glass or any other suitable transparent material which may be baked in the porcelain or secured in any other approved manner. The electrodes 13 are also mounted in the core so as to render the juncture gas-tight, and binding posts 15 are provided on the outer ends of the terminals of the electrodes 13 for the attachment of wires.

The inner end of the core 5 terminates preferably short of the inner end of the casing 1, and the inner ends of the electrodes 13 are bent inwardly and extend toward each other, forming terminals 16 spaced apart to provide a spark gap which is located in alinement with the plug 14. Hence, while the engine is running, the spark can be observed through the transparent plug.

In case it may be desirable to ground one of the electrodes 13 in order to enable the plug to be used in various electric circuits it is simply necessary to provide a binding screw 17 fixed to the casing 1, and, when this plug is connected by a wire (not shown) with one of the binding posts 15, my improved plug can be used in any ordinary grounded circuit.

While I refer to the plug 14 of transparent material it is to be understood that I use this term in its broadest possible sense to include any transparent or translucent material which will permit an observation of the spark.

It is, of course, to be understood that the invention is not limited to the particular materials employed or the precise manner of connecting them, and various slight changes and alterations might be made in the general form of the parts described without departing from my invention and

hence I do not limit myself to the precise details set forth but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of the appended claim.

I claim:

A spark plug, comprising a casing, an insulating core in the casing and of a length greater than the casing and projecting appreciably above the upper end of the casing, said core having three parallel bores, a transparent core secured in the central bore and extending throughout the length of the core, and a pair of electrodes projecting through the other bores and having terminals at their inner ends spaced apart and located in line with the transparent core.

LOUIS HIRSCH.