F. G. MEYER.

SPARK PLUG INTENSIFIER.

APPLICATION FILED FEB. 8, 1918.

1,296,101.

Patented Mar. 4, 1919.

Fig. 1

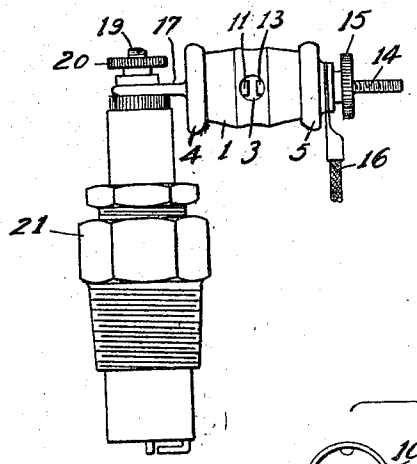


Fig. 2.

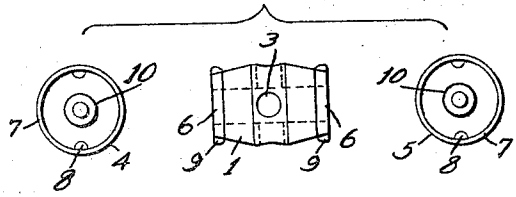
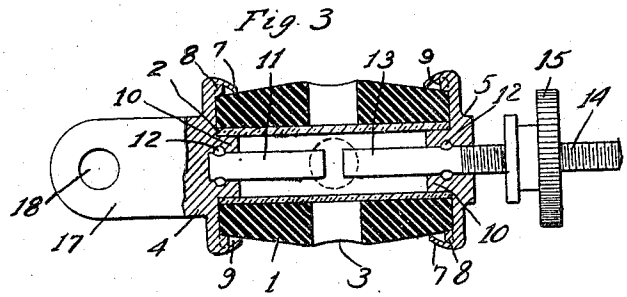


Fig. 3



Inventor

Fred G. Meyer.

Witness

Marie Broesamle

By B. F. Wheeler

Attorney

UNITED STATES PATENT OFFICE.

FRED G. MEYER, OF DETROIT, MICHIGAN.

SPARK-PLUG INTENSIFIER.

1,296,101. Specification of Letters Patent. Patented Mar. 4, 1919.

Application filed February 8, 1918. Serial No. 216,061.

To all whom it may concern:

Be it known that I, FRED G. MEYER, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Spark-Plug Intensifier, of which the following is a specification.

This invention relates to spark intensifiers especially adapted for use in the ignition circuits for the spark-plugs of internal combustion engines.

The general object of the invention is to provide a comparatively simple and efficient device containing a visible spark gap for introduction into the ignition circuit and connection with the spark-plug, which will serve to intensify the spark at the plug and enable the condition thereof to be readily observed.

A special object of the present invention is to provide a device of this character of improved structural formation in which the parts will be comparatively few in number and extremely simple to machine and assemble, and which as a whole will be readily attachable, thoroughly serviceable and efficient in operation and less liable to breakage or disarrangement than the usual devices of this character.

Further objects and advantages will appear from the following description of a preferred embodiment of the invention as illustrated in the accompanying drawings, and in which:

Figure 1 is a side elevation of the device embodying my invention, showing it connecting the terminal of an ignition circuit cable with an ordinary spark plug.

Fig. 2 is a view in elevation of the body and end portions of the device disengaged.

Fig. 3 is a central longitudinal section through the device with the parts in the assembled position.

Referring to the several parts by the characters of reference leading thereto, 1 represents a cylindrical barrel-shaped body member of insulating material, which is preferably formed of vulcanized rubber or hard fiber to render it substantially non-breakable, and inserted in a bore formed axially through said body is a transparent sleeve or tube 2 of insulating material which may be either of glass or sheets of mica rolled to form a cylinder the length of which should be equal to or slightly less than that of the body so as not to protrude beyond the ends thereof.

Formed centrally and radially through the body 1 is a plurality of apertures 3 which are intersected and abridged by the transparent sleeve 2 and form sight-windows through which the interior thereof may be observed. The ends of this body member, which are respectively received by flanged inclosing caps 4 and 5 are formed with annular shoulders 6 about which the flanges 7 of said caps are rolled or pressed into clamping engagement to prevent withdrawal therefrom, and formed integral with the inner faces of said caps adjacent the flanges thereof are laterally projecting lugs 8 which are received by and interlocked with registering peripheral notches 9 formed in the shoulders 6 to retain said caps against relative rotation thereon.

Each of the caps 4 and 5 has formed integral with the inner face thereof a central laterally projecting hub 10, which hubs extend snugly into the respective ends of the tube 2 so as to close and seal the ends of said tube to form an air-tight chamber therein. Extending centrally from the hub of the cap 4 to a point intermediate the ends of the tube 2 and terminating in transverse alinement with the sight openings 3 is a sparking electrode in the form of a stem 11 which is rigidly secured at one end in the hub 10, preferably by providing the engaged end with laterally projecting anchoring lugs 12 which are embodied in the hub in the operation of casting the cap. Similarly anchored to extend through the cap 5 and its hub 10 into the tube 2 in axial alinement with the electrode 11 is a second electrode 13 which is spaced at its inner end from the end of the electrode 11 to form an air gap for the passage of a spark in the passage of the electric current through said electrodes. The outer end of the electrode 13 is screw-threaded at 14 to receive a binding nut 15 for effecting a connection with the terminal of a cable or electric conductor 16 such as ordinarily connects the ignition circuit with the spark plug of the engine. The cap 4 is provided with a laterally projecting tongue 17 having an aperture 18 therethrough for the reception of the binding post 19 and engagement with the clamping nut 20 of a spark plug 21, as shown in Fig. 1. By this means the device is con-

nected in the circuit with said plug so that the current passing thereto will be caused to jump the gap at the ends of the electrodes 11 and 13 and thus produce a spark within the transparent sleeve which will be visible through the sight openings 3 in the body of the device.

It will be observed that the principal parts in the present structure when assembled are securely held relatively fixed, the spacing of the electrodes to provide the proper spark gap being predetermined and there being no provision for adjustment, disarrangement of the parts through tampering by unskilled users is avoided. It will also appear that by inclosing the electrodes in an air-tight chamber within the transparent tube and by embracing said tube, which is comparatively fragile, within the fibrous body provided with sight openings, said electrodes will be kept clean and free from any substances that might affect their functioning, and the condition of the spark may be readily observed through said openings, while the body member will not only serve to reinforce and protect said tube against breakage but also affords a strong, yet yieldable foundation upon which to firmly clench the end caps and securely tie the parts together.

I claim:

1. An electric-igniter intensifier comprising a cylindrical insulating body member having annular peripheral shoulders at opposite ends thereof and provided with an axial bore therethrough and a radial sight opening intersecting said bore intermediate said ends, a transparent member abridging said opening within said bore, a cap for each end of said body member having a bendable flange for engagement with the shoulder thereof and provided with a hub portion extending into the bore of said body member, and sparking electrodes respectively anchored in said caps and extending into said bore in spaced axial alinement adjacent said opening.

2. An electric-igniter intensifier comprising a cylindrical body member having annular peripheral shoulders at opposite ends thereof and provided with an axial bore therethrough and a radial sight opening intersecting said bore intermediate said ends, a transparent insulating sleeve extending through said bore and abridging said sight opening, a cap for each end of said body member having a bendable flange for engagement with the shoulder thereof and provided with a hub portion extending into the end of said sleeve, and sparking electrodes respectively anchored in said hubs and extending into said sleeve in spaced axial alinement adjacent said sight opening.

3. An electric-igniter intensifier comprising a cylindrical insulating body member having an axial bore therethrough and a radial sight opening intersecting said bore, a transparent member abridging said opening, a cap fixedly secured over each end of said body member and having a hub portion extending into the end of said bore, one of said caps having an integral laterally extending tongue provided with an aperture for the reception of the binding post of a spark-plug, a sparking electrode anchored in the hub portion of said cap and extending into said bore in line with said sight opening, a second sparking electrode spaced axially from said first named electrode and anchored to extend through the other of said caps, the outer end of said second electrode being screw-threaded and provided with a binding nut for engagement with the terminal of an electric conductor.

4. An electric-igniter intensifier comprising a cylindrical insulating body member having annular peripheral shoulders at opposite ends thereof and provided with an axial bore therethrough and a radial sight opening communicating with said bore, a transparent insulating sleeve extending through said bore and abridging said opening, a cap for each end of said body member having a flange engaging the shoulder thereof and provided with a hub portion extending into the end of said sleeve, one of said caps having an apertured tongue for engagement with a spark-plug, a sparking electrode anchored in the hub portion of said cap and extending into said sleeve adjacent said sight opening, and a second sparking electrode spaced axially from said first named electrode and anchored to extend through the other of said caps, the outer end of said second electrode being screw-threaded and provided with a binding nut for engagement with the terminal of an electric conductor.

In testimony whereof I sign this specification.

FRED G. MEYER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."