Dec. 4, 1934. A. A. GUZIEL ET AL 1,982,866

SPARK PLUG

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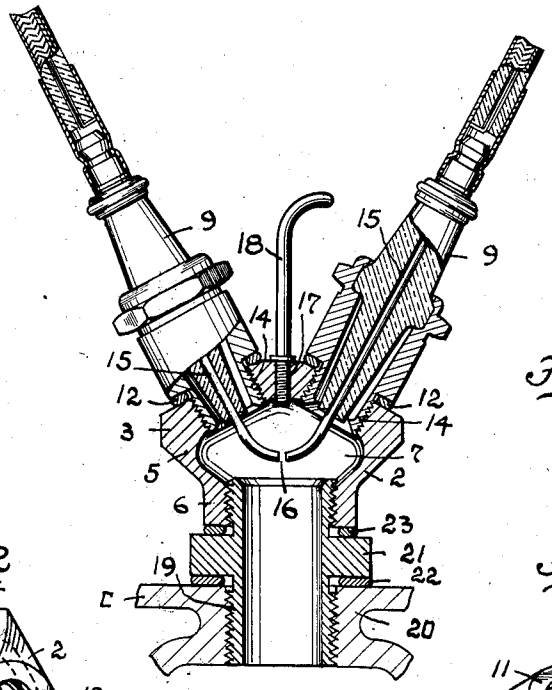


Fig ~ 1

Fig ~ 2

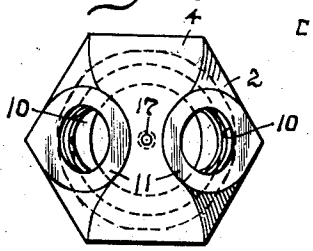
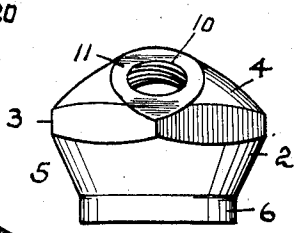


Fig ~ 3



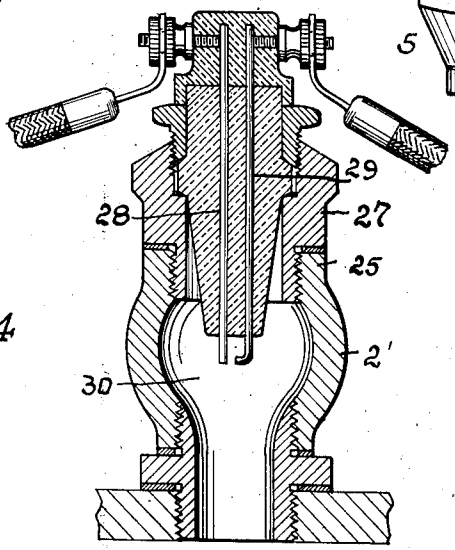


Fig ~ 4

Inventor

ALEXANDER A. GUZIEL

ARNOLD KORFF

By Percy H. Moore

Attorney

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SPARK PLUG

Alexander A. Guziel and Arnold Korff,
Hollywood, Calif.

Application July 20, 1932, Serial No. 623,594

1 Claim. (Cl. 123—169)

Our invention relates in general to improvements in sparking mechanism for internal combustion engines and more particularly to new and useful means for connecting spark plugs to the cylinder head of an engine.

The primary object of the invention is to provide a simple and efficient hollow spark plug adapting and supporting means readily attachable to the cylinder head of an engine, which supporting means embodies a pre-ignition chamber for reducing to a minimum the danger of plugs becoming coated with oil or carbon and for effecting extended and powerful action of the explosive charge.

A further object of the invention is to provide an adapting and supporting means, capable of supporting two plugs and permitting the use of ordinary spark plugs in the construction of special devices having two insulated electrodes, such as disclosed and described in our co-pending application Serial No. 615,154, filed June 3, 1932, Patent 1,941,170, Dec. 26, 1933.

Another object of the invention is the provision of means for conveniently introducing a priming liquid direct to the gap between the electrodes of the spark plug.

With these objects in view and others which will be apparent as the description proceeds, the invention comprises various novel features of construction and arrangement of parts more clearly described hereinafter and set forth with particularity in the claim appended hereto.

In the accompanying drawing, which illustrates the invention, and wherein similar reference characters are employed to designate corresponding parts throughout the several views,

Figure 1 is a transverse sectional view partly in side elevation of a spark plug adapter carrying two single electrode spark plugs;

Figure 2 is a plan view of the adapter shown in Figure 1;

Figure 3 is a side view thereof; and

Figure 4 is a transverse sectional view of a modified form of a spark plug adapter to be used with a spark plug having two insulated electrodes.

Referring now to the drawing, the preferred embodiment of the invention, as illustrated in Figures 1 through 3 includes a hollow steel cast body 2, formed with hexagonal wrench engaging portion 3 to facilitate attachment of the body to the cylinder C of an engine. The top portion of the body 2 is outwardly bulged, and its bottom portion 5 is contracted to form an internally threaded neck portion 6, so that the hollow interior of body 2 forms a round pre-ignition chamber 7 open at its bottom, and of considerably greater cross sectional area than that of the neck portion 6. Body 2 carries spark plugs 9 threadedly engaged with diametrically opposed perforations 10 in bulged top portion 4. These plugs seat upon flat faces 11, encircling perforations 10, when the threaded plug extensions 14 are screwed home, washers 12 being preferably employed to insure a tight seal. Each plug embodies an insulated electrode 15, extending a substantial distance into chamber 7, the inner end of one electrode terminating adjacent to but slightly spaced from the other end of the other electrode thus forming a sparking gap 16 within the said chamber. The structure just described constitutes in effect, a unitary spark plug having two fully insulated electrodes 15, each of which is preferably formed of an ordinary single electrode spark plug, the ground electrode of which has been cut off and the insulated electrode of which has been slightly extended. A small threaded opening 17, formed centrally within the top portion 4 and communicating with chamber 7, provides means for conveniently priming the spark plug. This opening is tightly sealed by means of a readily removable threaded wire member 18, threadedly engaged therein.

Body 2 is connected to and supported by a tubular extension or coupling member 19 threadedly engaging neck portion 6 of said body, and extension 19 is in turn screwed into the head 20 of cylinder C. A central hexagonal enlargement 21 on extension 19 seats upon cylinder C and limits the axial movement of body 2 with respect to said extension. Washers 22 and 23 effect a tight seal between cylinder C, extension 19 and body 2 respectively.

From the foregoing it will be seen that in the preferred form of our invention we have provided a spark plug having a pre-ignition chamber into which two fully insulated electrodes extend. Sparking, which is effected in the usual way, causes pre-explosion of the charge in pre-ignition chamber 7, and the projection of an intensively hot flame into cylinder C, thus effecting extended and extremely powerful explosive action in the cylinder.

In the modified form of our invention illustrated in Figure 4 the spark plug adapter 2′ which is identical in its pre-ignition action to the form previously described, is provided in its top portion 25 with a single perforaton 26 for use with a single spark plug 27, having two fully insulated electrodes 28 and 29 extended into a pre-ignition chamber 30.

According to our invention, it is possible to use relatively larger spark plugs on small engines by merely employing tubular extensions or couplings 19 having relatively small inner ends to permit screw connection with the small tapped holes of an engine of small dimensions.

Having thus described our invention, what we claim is:

A spark plug adapting and supporting means, comprising a body having a bulged symmetrically perforated chambered top portion and a contracted neck portion open at its bottom, straight seating surfaces on said top portion encircling the perforations thereof, and an exteriorly threaded tubular extension for the open bottom portion of said adapting and supporting means, the chamber in said hollow top portion being of substantially double cone-shape and having its vertical axis aligned with the axis of said body to direct explosion impulses axially downwardly into said tubular extension.

ALEXANDER A. GUZIEL.
ARNOLD KORFF.