March 12, 1929. R. L. ASPDEN 1,704,781

SPARKING PLUG SUITABLE FOR INTERNAL COMBUSTION ENGINES

Filed June 1, 1927

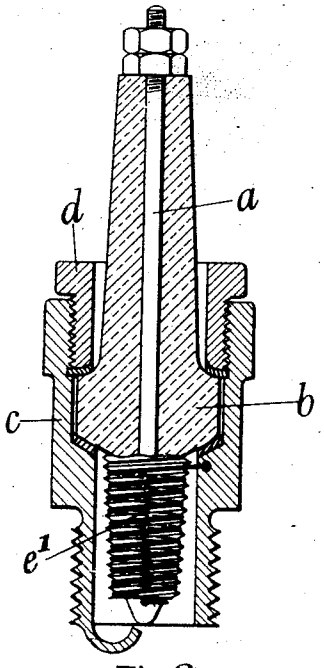


Fig.2.

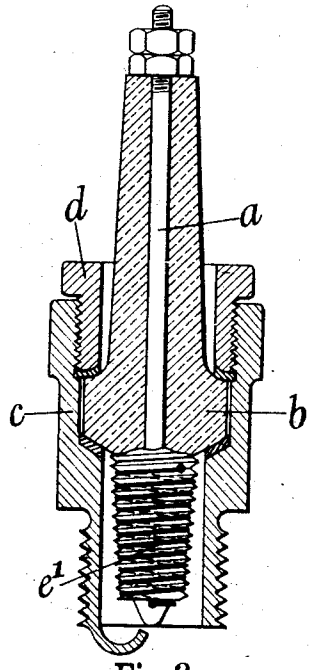


Fig.3.

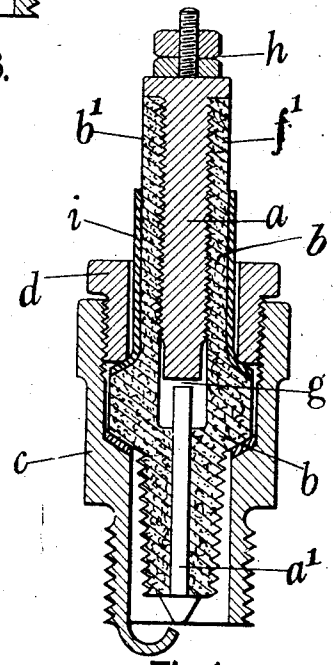


Fig.1.

R. L. Aspden INVENTOR

By: Marks & Clerk Attys.

Patented Mar. 12, 1929. 1,704,781

UNITED STATES PATENT OFFICE.

RALPH LEONARD ASPDEN, OF CHORLEY, ENGLAND.

SPARKING PLUG SUITABLE FOR INTERNAL-COMBUSTION ENGINES.

Application filed June 1, 1927, Serial No. 195,827, and in Great Britain June 21, 1926.

This invention relates to sparking plugs suitable for internal-combustion engines and has for its object to prevent deposits of soot interfering with the proper development of the spark.

With such an object:—

The invention comprises the formation within the sparking plug of a condenser and second spark gap for the production of high frequency current from the usual high tension magneto or transformer coil supply, and the arrangement of a choking coil or its equivalent on the insulation around the central electrode of the plug.

Referring to the accompanying drawings which are of a diagrammatic nature:—

Figure 1 is a sectional view of a sparking plug having a condenser and spark gap formed therein in addition to the equivalent of a choking coil.

Figures 2 and 3 show two modified arrangements of the choking coil.

Corresponding parts in the different figures are denoted by the same reference letters.

In the sparking plug illustrated at Figure 1, a spark gap g is formed within the insulator b and between the central electrode a^1 and the rod a to which the high tension lead is connected in the usual way at h. Such rod a forms one plate of a condenser of which the insulating sleeve b^1 (forming part of the insulator b) acts as di-electric and the metal plate i forms the other plate. The insulator b is threaded for the reception of soot deposits formed during the use of the plug, or metal paint may be deposited in the threads, which acts or act as a choking coil with reference to the high frequency current. By combining a condenser and spark gap within the plug itself I simplify the construction by which high frequency current is obtained and enable the plug to be connected up to an ordinary high tension lead. I may apply a metallic paint to the inside and outside of the insulating sleeve b^1.

Instead of providing the functional equivalent of a choking coil as in Figure 1, I may provide an actual choking coil around the insulation as shown in Figures 2 and 3.

In Figure 2, the insulator b carries a helical coil of wire e^1 wound around it which acts as a choking coil and in addition serves to prevent deposit of soot. The coil is connected at one end to the electrode a and at the other end to the plug body c so as to short circuit the spark gap. In Figure 3, the coil e^1 is connected at one end to the electrode and to the insulating sleeve at the other end.

It will be evident that the mechanical details of the sparking plug and choking coil may take various forms without exceeding the scope of the present invention.

What I claim is:—

1. In a sparking plug, in combination, a body part having one electrode formed therewith, an insulator, a rod to which the high tension lead is secured extending into said insulator from one end, a second rod forming the central electrode also extending into said insulator from the other end leaving a gap between itself and the said rod, a metal plate around part of the insulator surrounding said first mentioned rod, said metal plate and rod forming the two plates of a condenser and the insulator the dielectric thereof, and means at the end of the insulator around the central electrode acting as a choking coil for high frequency current.

2. In a sparking plug comprising a body part forming one electrode of the plug, an insulator within said body part, a gland nut screwing into said body part for holding said insulator in place, and a central electrode projecting from said insulator, the combination therewith of a rod (to which the high tension lead is secured) extending into said insulator but leaving a completely enclosed spark gap between itself and the end of the central electrode, a metal plate between the gland nut and insulator and surrounding a part of the insulator through which the rod extends, the end of the insulator around the central electrode being threaded and acting in service as a choking coil for high frequency current.

In testimony whereof I have signed my name to this specification.

RALPH LEONARD ASPDEN.