R. R. ANDERSON.

SPARK PLUG.

APPLICATION FILED FEB. 16, 1920.

1,365,143. Patented Jan. 11, 1921.

Fig. 1.

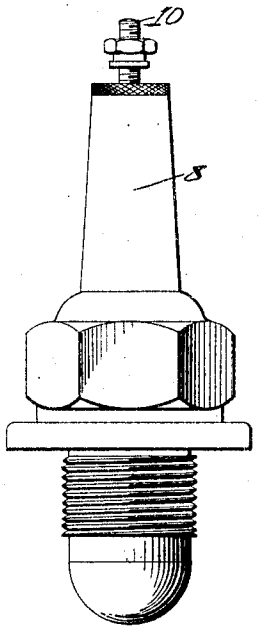


Fig. 2.

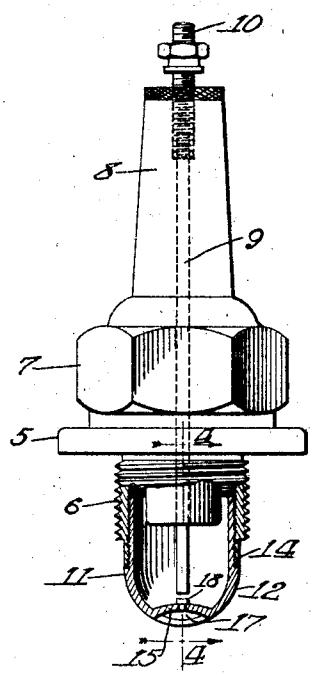


Fig. 3.

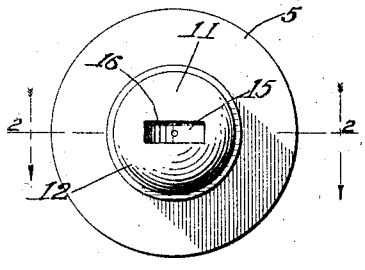
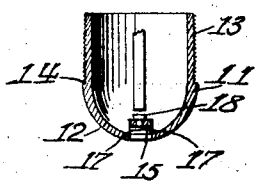


Fig. 4.



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SPARK-PLUG.

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To all whom it may concern:

Be it known that I, ROBERT R. ANDERSON, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Spark-Plugs, of which the following is a specification.

This invention pertains to spark plugs employed in the well known manner in internal-combustion engines, and the primary object is to provide a spark plug of novel construction which shall function properly under the varying conditions of usage. In other words I have aimed to eliminate as much as possible the engine troubles incidental to defective sparking. This I have accomplished by provision of a spark plug of unique construction, in which the spark gap is effectually housed and protected against exposure to and accumulations of oil, carbon and other foreign matter present in the cylinders, yet so arranged as to perform its ignition function in an efficient manner.

Another object of my invention is to provide a spark plug of the foregoing characteristics which shall be constructed in such simple and practical manner as to be capable of economical production as a commercial article.

Other objects and attendant advantages will be appreciated as the invention becomes better understood by reference to the following description when considered in connection with the accompanying drawing, in which—

Figure 1 is a side view of a spark plug embodying my improvements;

Fig. 2, a similar view with the threaded end in section, as on the line 2—2 of Fig. 3;

Fig. 3, a bottom view of the plug; and

Fig. 4, a detail section substantially on the line 4—4 of Fig. 2.

My improvements relate primarily to the construction and arrangement of the parts which make the spark gap. The remaining parts of the plug might be of any suitable or preferred construction, and at present I have shown such parts merely in conventional form. They comprise a plug body designated generally by reference character 5, having an exteriorly threaded end 6, locknut 7, insulator 8 and a central conductor 9, suitably secured to the insulator body and having a binding post 10 for attachment of the electric connection.

My improvements contemplate the provision of a spark chamber effectually protected against the admission of foreign matter, more particularly to the spark gap, and further aims to so arrange this spark gap that the sparking efficiency will not be impaired. To this end I have provided a cap designated generally by 11, having a rounded lower end 12 and an exteriorly threaded upper end 13 which threadingly engages in the lower end 6 of the plug body and is adapted to be drawn tight against a suitable shoulder, such for example as 14. In forming this cap, a diametrical strip 15 across the rounded end is punched in, slitting the metal along the parallel edges 16 and forming an upwardly arched part, integral with the cap. This operation also forms an opening 17 contiguous to each slit 16. The pressed in part 15 carries a terminal point 18 of different material from that of the cap 11. The conductor 9 extends down through the chamber formed by the cap and into the requisite proximity to the terminal point 18, thus providing a horizontal spark gap. It will be observed that this gap is protected from fouling conditions often present in the cylinder proper, and that the openings 17 afford ample communication for instantaneous flame propagation. Furthermore, the spark gap is fully protected by the bridge piece 15 which constitutes an effective baffle and obstruction against foreign matter working upwardly to said gap. The construction is, obviously, very simple, and by pressing the diametrical portion 15 in by proper forming tools, these caps may be produced at comparatively low cost.

It is believed that the foregoing conveys a clear understanding of my invention, and while I have illustrated but a single embodiment, various changes in details of construction might be made without departing from the spirit and scope of the invention as expressed in the appended claims, in which—

I claim:

1. In a spark plug, a cap adapted to be threadingly connected to the lower end of a plug body and having a rounded lower end punched in diametrically to provide a bridge piece flanked by an opening on each side and equipped on its upper side with a terminal point coöperating with a central depending conductor carried by the insulation body of the plug.

2. In a spark plug, the combination of a plug body having an exteriorly threaded lower end, an insulation body, a central conductor in said insulation body, a cap having a rounded end threadingly engaged within said lower end of the plug body, said rounded end being pressed in, forming an upwardly arched part and an opening at each side of said part communicating the interior and exterior of the cap, the central conductor depending into proximity to said part so as to provide a spark gap therewith.

3. In a spark plug, a cap of the character described, having a lower rounded end and an upper threaded end, the rounded end having a diametrical portion pressed in forming a slit opening on each side of said portion, and a terminal point on the inner side of said pressed-in portion.

ROBERT R. ANDERSON.