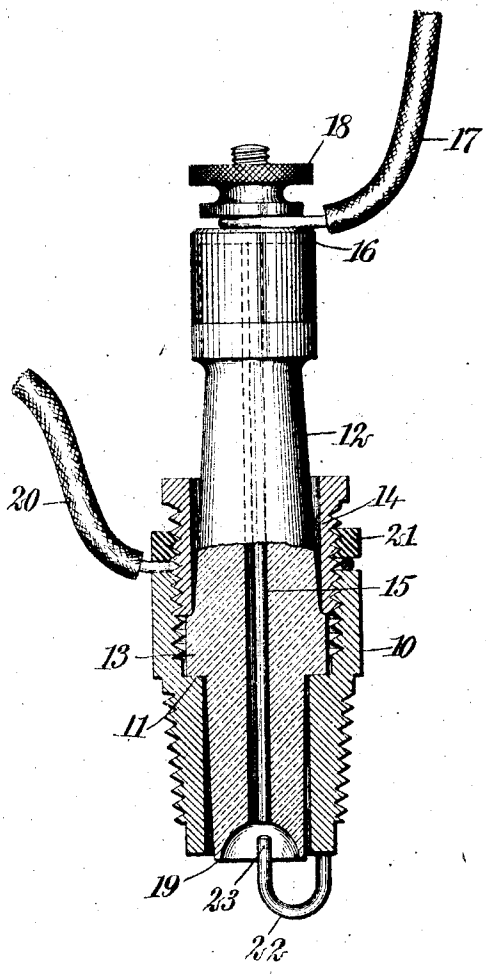
No. 893,955. PATENTED JULY 21, 1908.

C. T. VAN WOERT.

SPARK PLUG.

APPLICATION FILED AUG. 1, 1907.



WITNESSES

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CLARENCE THORN VAN WOERT, OF NEW YORK, N. Y.

SPARK-PLUG.

No. 893,955. Specification of Letters Patent. Patented July 21, 1908.

Application filed August 1, 1907. Serial No. 386,639.

To all whom it may concern:

Be it known that I, CLARENCE THORN VAN WOERT, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Spark-Plug, of which the following is a full, clear, and exact description.

This invention relates to certain improvements in spark plugs for use in connection with internal combustion engines and the like, and relates more particularly to means for preventing lubricating oil or other liquids within the cylinder which come in contact with the spark plug, from passing the spark gap. If lubricating oil is present upon the terminals of the electrode and adjacent the spark gap at the time the spark passes, the oil often becomes decomposed and soot or carbon is deposited upon the terminals and the passage of the spark materially interfered with. If the liquid is of a conducting nature, a drop may collect and connect the two electrodes and permit of a passage of the current without a spark.

In my improved construction, it is impossible for oil or other liquids to pass the spark gap, as any and all liquids which come into the vicinity of the terminals are drained away from the spark gap. The spark is formed within the recess and adjacent the innermost portion thereof, and the first portion of the explosion, therefore, takes place within the recess. The outward rush of flame from the spark gap toward the interior of the engine cylinder serves to remove all oil or other liquid which may be upon the inclined draining surface of the core or upon the lower electrode. Thus the electrodes adjacent the spark gap are kept clean both by the draining action and by the sweep of flame at the beginning of the explosion.

Reference is to be had to the accompanying drawing, forming a part of this specification, in which the figure shows a central longitudinal section through a spark plug constructed in accordance with my invention.

The spark plug comprises a casing 10 having one end thereof threaded and adapted to be screwed into an opening in the engine cylinder or other explosion chamber. The casing is provided with a centrally-disposed passage therethrough and the outer end of the passage is provided with internal screw threads and a shoulder 11. Extending through the casing is a core 12 of porcelain or other suitable non-conducting material and having a flange 13 engaging with the shoulder 11 to limit the inward movement of the core. The core is held in place by a threaded sleeve 14 engaging with the outer surface of the flange 13 of the core and holding the latter firmly in place. The core is provided with a centrally-disposed passage therethrough, and extending through this passage is an inner or central electrode 15 which as illustrated may be somewhat smaller than the passage. The outer end of the electrode is cemented or otherwise rigidly secured to the core and connects with a metallic collar 16 at the outer end.

An electric wire 17 is held in place upon the collar and the electrode by a suitable thumb nut 18. The inner end of the core is provided with a recess, the innermost portion of which is at the central passage of the core, and the inner electrode 15 terminates substantially flush with the surface of the recess. The walls of the recess form a draining surface from the terminal to the electrode, and any oil or other liquid which may splash against the spark plug or in any other manner come into contact with the electrode 15 and the core, will immediately drain out of the recess and away from the electrode to the outer annular drip edge 19 of the core. The other wire 20 of the electrode surrounds the gland formed by the threaded sleeve 14 adjacent the outer end of the spark plug casing or body 10, and is firmly held in engagement therewith by a suitable nut 21. This nut serves not only to hold the electric wire in place and form a firm contact therewith, but also serves as a lock nut for preventing the accidental displacement or the working loose of the gland. At the inner end of the body or casing 10, there is provided a second electrode 22, substantially U-shaped in form and having one end secured to and supported by the casing and the other end extending up into the recess in the end of the core to a point closely adjacent the end of the other electrode 15. As the terminal portion 23 of this second electrode extends upward, it is evident that any oil or other liquid which may come into engagement therewith will immediately drain down to the lowermost or bowed portion of the electrode and drip therefrom.

By means of the above construction it is practically impossible for oil to accumulate at the terminals of the electrodes, as both of

them are so constructed as to bring about an immediate shedding or draining of the oil or liquid. It is evident that any drops which may accumulate at the annular drip edge 19 or at the lower or bowed portion cannot in any way interfere with the passage of the spark.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A spark plug adapted to be used in a substantially upright position, including a core of insulating material having a recess in its lower or inner end, an electrode extending through said core and terminating within said recess substantially flush with the innermost portion thereof, and a second electrode extending into said recess from below and terminating adjacent the end of the first-mentioned electrode to leave a spark gap therebetween, adjacent the innermost portion of the recess, whereby all oils or other liquids are automatically drained away from the spark gap by the walls of the recess and the second electrode, and whereby the first portion of the explosion sweeps said liquids from the recess.

2. In a spark plug, a downwardly-extending electrode an upwardly-extending electrode spaced therefrom to leave a spark gap, and means for maintaining said spark gap free from oils or other liquids, said means including a piece of insulating material surrounding the first-mentioned electrode adjacent its extreme end and having inclined walls extending downwardly and outwardly from said extreme end to form a recess with the spark gap in the innermost portion thereof.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CLARENCE THORN VAN WOERT.

Witnesses:
CLAIR W. FAIRBANK,
EVERARD B. MARSHALL.