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UNITED STATES PATENT OFFICE.

ARTHUR PELTIER, OF DETROIT, MICHIGAN, ASSIGNOR OF SEVEN-SIXTEENTHS TO JOHN HOUP, OF DETROIT, MICHIGAN.

COMBINATION PRIMING-CUP AND SPARK-PLUG.

937,690.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ARTHUR PELTIER, citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Combination Priming-Cups and Spark-Plugs, of which the following is a specification.

This invention appertains to spark plugs for internal combustion engines, and has for its object to supply a device of this character which may be utilized for priming an engine preliminary to starting the same.

This invention aims to guard against short circuiting, and to maintain the electrodes or sparking elements free from carbon, to insure positive and certain sparking at the proper times, and lastly to devise a construction which will admit of repairs being cheaply and quickly effected.

With this and other objects in view that will more fully appear as the description proceeds, the invention consists in certain constructions and arrangements of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention and the merits thereof and to acquire a knowledge of the details of construction, reference is to be had to the following description and accompanying drawing, in which:

Figure 1 is a view in elevation, of a combined priming and spark plug; Fig. 2 is a vertical central section thereof; and, Fig. 3 is a horizontal section on the line $x-x$ of Fig. 2.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawing by the same reference characters.

The plug 1 is of metal and provided at one side near its upper end with an extension 2 which is surmounted by means of a valve 3 and cup 4. The lower portion of the plug 1 is externally screw threaded as indicated at 5 to make connection with the engine to which applied. An opening 6 extends through the plug and is enlarged at its upper end as shown at 7, the upper part of said enlargement being internally threaded to receive the threaded portion of a nut 8. An opening 9 is formed in the lateral extension 2 and communicates with a passage 10 formed in a side portion of the plug

1, said opening 9 leading through the valve 3 and communicating with the bottom of the cup 4 so as to convey gasoline or other volatile hydrocarbon into the engine to produce the explosive mixture for the initial charge, which, when exploded, starts the engine. A space 11 is formed in the lower end of the plug and is in communication with the passage 10 and opening 6, and connects with the combustion space of the engine to insure firing of the charge upon passage of the current to produce the spark.

A post 12 of dielectric material such as porcelain, has its lower portion fitted in the opening 6 of the plug 1 and secured therein by means of the nut 8. The post 12 is formed with a central opening which receives the electrode, the latter being held in place in any substantial way. The lower portion 13 of the post 12 is contracted to fit the opening 6, and the middle portion of the post is enlarged as indicated at 14 to fit the enlarged portion 7 of the opening 6, said enlargement 14 forming the outer shoulder against which the lower end of the nut 8 engages so as to hold the post 12 securely in place. The upper end of the post 12 is reduced as shown at 15, and receives a washer 16 and a hollow nut 17. A winged clamp nut 18 is mounted upon the hollow nut 17 and serves to bind the lead wire by means of which the current is conveyed to the electrode 19 arranged within the post 12, the upper portion of the electrode being threaded and receiving the hollow nut 17 and the clamp nut 18. The electrode 19 is embedded in the post 12 and is provided with an enlargement 20 to prevent possible longitudinal or vertical movement of the electrode when the device is in active operation. A wire 21 projects from the inner lower end of the electrode 19 and may form a part thereof or be attached thereto in any manner. The lower end of the wire 21 extends below the post 12 into the space 11, and is deflected laterally and co-operates with an electrode 22 fitted to the plug 1. The spark is formed in the well-known manner by the jumping of the current, thereby firing the charge and starting the engine after the same has been primed.

Having thus described the invention, what I claim is:

A combined priming and sparking plug for internal combustion engines, the same

consisting of a plug having a space in its lower end and two openings extended upwardly from said space and provided near its upper end with a lateral extension having an opening in communication with one of the said upwardly extended openings of the plug, a valve and cup mounted upon said lateral extension, a post of dielectric material secured within the other upwardly extended opening of the plug, an electrode secured within the post and having its lower end terminating in the space at the lower extremity of the plug and a second electrode connected with the plug and arranged in

the space at the lower extremity of the plug, 15 both electrodes being positioned in the said space to receive the liquid discharged from the aforesaid cup through one of the openings of the plug and the space at its lower end when the aforementioned valve is 20 opened.

In testimony whereof I affix my signature in presence of two witnesses.

ARTHUR PELTIER.

Witnesses:

JAMES D. HOGG,
CHAS. V. GREEN.