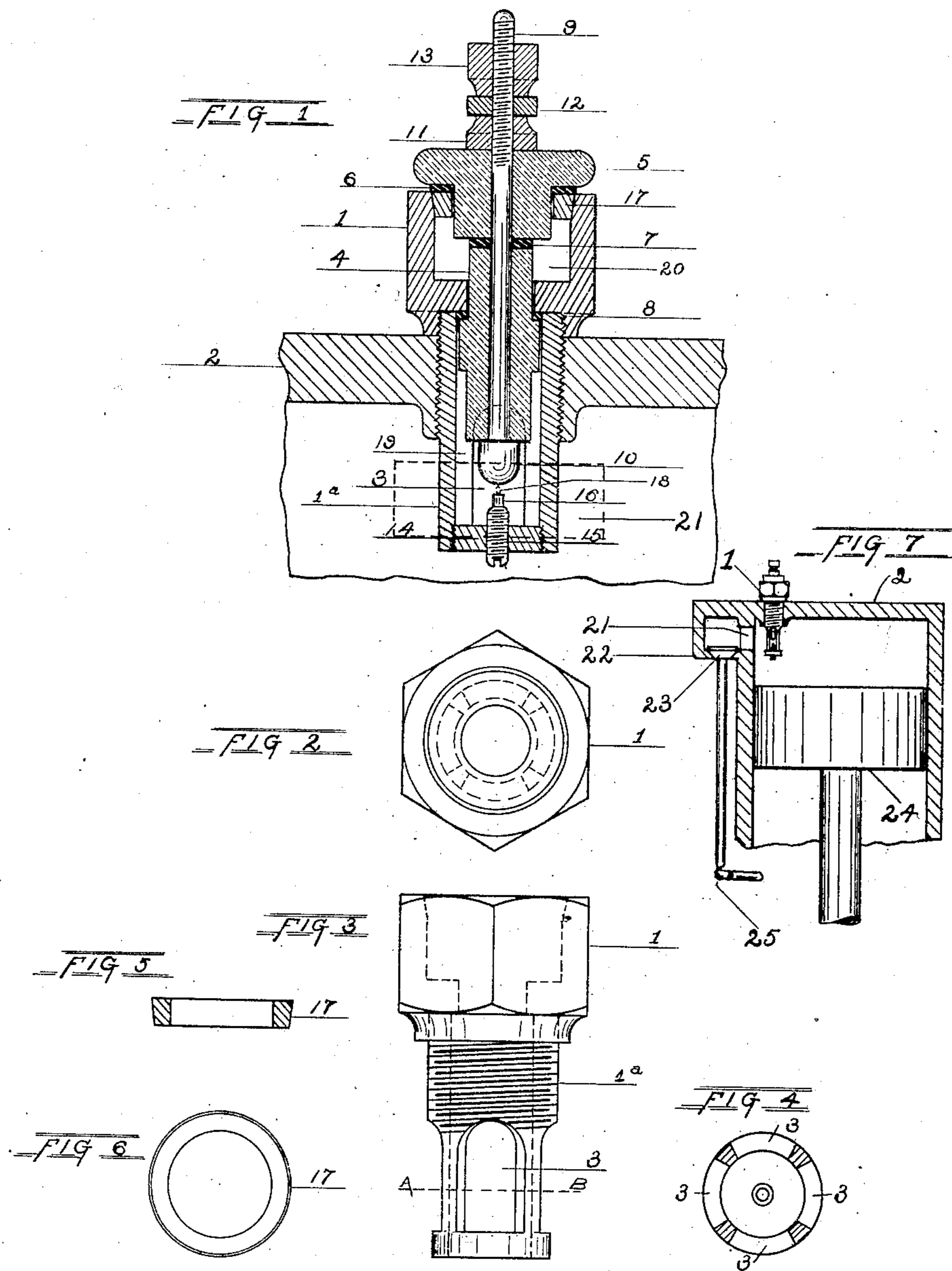


No. 827,108.

PATENTED JULY 31, 1906.

W. W. MORSE.  
SPARKING DEVICE.  
APPLICATION FILED JUNE 7, 1902.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLIAM W. MORSE, OF WEST ORANGE, NEW JERSEY.

## SPARKING DEVICE.

No. 827,108.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed June 7, 1902. Serial No. 110,619.

*To all whom it may concern:*

Be it known that I, WILLIAM W. MORSE, a citizen of the United States, residing at West Orange, New Jersey, have invented certain new and useful Improvements in Sparking Devices, of which the following is a clear, full, and exact description.

My invention relates to a sparking device for combustion-engines; and my object is to improve the construction and operation of the same.

My invention will be defined in the claims. In the drawings, which show the preferred embodiment of my invention, Figure 1 is a central section of the plug in place in the head of the cylinder. Figs. 2 to 6 show details, and Fig. 7 is a sectional view showing the position of the sparking plug with reference to the exhaust-port.

In the above preferred embodiment, 2 is a part of the head of the engine-cylinder, provided with a screw-threaded hole into which the plug may be screwed. The plug itself preferably, but not necessarily, consists of an externally-screw-threaded shell 1<sup>a</sup>, the lower end of which may be provided with legs 19, forming between them openings 3. A large nut 1 may be screwed on the top of the shell, and the lower part of the nut will form a shoulder which may be seated on the cylinder-head. A sparking terminal 16, of platinum, may be carried on the end of a screw 15, located in a nut 14 at the lower end of the shell, to adjust the position of the same.

4 is a plug of insulating material—such as porcelain or lava, for example—which is provided with a longitudinal bore or hole, and in this bore is a screw-threaded rod 9, which carries at its lower end another sparking terminal 10. This latter terminal is preferably made of carbon to increase the size and heat of the spark. The nut 1 has a deep central opening 20, and in the internal upper edge of this nut is seated a ring 17, which has a sloping exterior, as seen in Fig. 5, so that it will fit tight. Inside of this ring is a head 5, preferably of lignum-vitæ or other wood.

11 and 13 are lock-nuts on the screw-threaded end of rod 9 to adjust the same, and 12 is a washer.

It is well known that the products of combustion are often deposited on the sparking terminals, so that after a while the spark will not pass, and in order to prevent this I have so located these terminals in the explosion-chamber of the engine that there will be a

rush of gas past them which will tend to blow the deposited products of combustion off from the terminals, and so keep them clean. By "gas" I mean to include either the fuel vapor or the gas which is formed after the explosion has taken place and which latter is often called the "exhaust." In order to accomplish this result, I locate the igniter near a port, through which a rush of gas takes place either into or from the explosion-chamber, preferably in front of the exhaust-port.

In Fig. 7, 2 is the cylinder, provided with the exhaust-port 21. The exhaust-passage 22 is closed by a valve 23, which is opened when the piston recedes by piston 24 striking pivoted lever 25 or in any of the ways well known in the art, and it therefore is not more particularly shown. When the exhaust rushes through this port, it will sweep off the products of combustion which may have been deposited on the sparking points and will therefore keep them clean and in proper working condition.

It will be observed that there is quite a space between the terminals 10 and 16 and the sides 19 of the shell, which will more thoroughly insulate the terminals, and the same is true of the space 20.

I am aware that many changes may be made in the constructions heretofore described without departing from my invention as claimed, and I therefore do not desire to be limited to the embodiments herein illustrated and described.

What I claim is—

1. In a sparking plug in combination, an exteriorly-screw-threaded tube having at its lower end a plurality of lateral openings and a longitudinally-adjustable sparking terminal opposite said openings, a cup-shaped nut adapted to be screwed on said tube and larger at its bottom than the upper end of said tube to form a shoulder adapted to be seated on an engine, the lower portion of said nut extending inwardly to form an internal shoulder smaller than the interior of said tube, a central plug of insulating material within said tube and seated on said latter shoulder and having a longitudinal perforation, a ring seated in said cup-shaped portion of said nut, and an insulating-plug seated within said ring and separated a short distance from the internal sides of said nut, and a screw-threaded rod passing through both of said plugs and provided with one or more nuts thereon to adjust the same longitudi-

nally, and carrying a second sparking terminal at its lower end adjacent to said other terminal.

2. In a sparking plug in combination, an  
 5 exteriorly-screw-threaded tube carrying at its upper end a laterally-extending portion separable from said tube and forming a shoulder, said tube toward its lower end having a plurality of lateral openings and a sparking  
 10 terminal opposite said openings, said shell being closed at its lower end, a plug of insulating material within said shell and having a longitudinal bore, a rod passing through said bore and out of the top of said plug and screw-  
 15 threaded at its upper end and one or more nuts on said screw-threads for adjusting said rod, a sparking terminal carried by the lower end of said rod at a distance from said other terminal and also opposite said openings in  
 20 said shell, said rod being insulated from said other terminal.

3. A two-part sparking plug consisting of one part provided with a shouldered portion of greater diameter than the opening in the  
 25 engine-cylinder which is to receive the plug and a second part secured thereto and in use adapted to occupy a position within the said opening, said second part having a closed bottom carrying a sparking terminal and an

open side, an insulating-plug within the upper  
 portion of said second part, a second spark-  
 ing terminal therein, the closed bottom act-  
 ing as a baffle-plate to deflect oil and prod-  
 ucts of combustion away from the sparking  
 terminals. 30

4. A two-part sparking plug consisting of one part provided with a shouldered portion of greater diameter than the opening in the engine-cylinder which is to receive the plug and a second part secured thereto and in use  
 35 adapted to occupy a position within the said opening, said second part having a closed bottom carrying a sparking terminal raised above the lower end of said closed bottom and centrally located therein, and an open  
 40 side, an insulating-plug within the upper portion of said second part, a second sparking terminal therein, the closed bottom acting as a baffle-plate to deflect oil and products of  
 45 combustion away from the sparking termi- 50  
 nals.

Signed at New York, N. Y., this 2d day of June, 1902.

WILLIAM W. MORSE.

Witnesses:

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