

W. FALWELL.
SPARKING DEVICE.
APPLICATION FILED OCT. 10, 1910.

998,885.

Patented July 25, 1911.

Fig. 1.

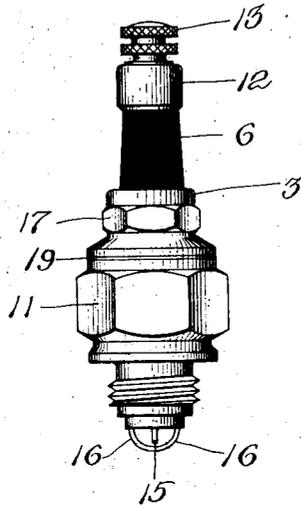


Fig. 2.

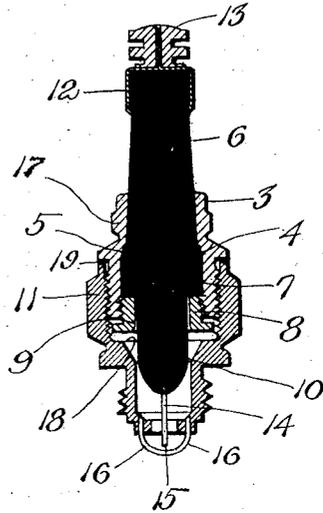
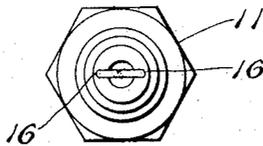


Fig. 3.



Witnesses:
Robert Jackson Crum
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Atty.

UNITED STATES PATENT OFFICE.

WRAY FALWELL, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO WRAY MANUFACTURING COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

SPARKING DEVICE.

998,885.

Specification of Letters Patent. Patented July 25, 1911.

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To all whom it may concern:

Be it known that I, WRAY FALWELL, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Sparking Devices, of which the following is a specification.

My invention relates to sparking devices for use in internal combustion engines and its objects are to prevent the parts from being readily disassociated by reason of the shaking of the same, to render the sparking terminal points more accessible and to provide a means for more securely holding the insulation in place.

My invention consists in constructing a metal shield in which the insulation is inserted from below and which has a seat to prevent said insulation from being moved in any direction except downwardly, the insulation being provided with an enlargement for securing the same in said shield by means of a cap threaded to engage with said shield from below, and the lower portion of said shield closed by said cap engaging with and being inclosed by a shell electrode, whereby the escape of the insulation from the shield by the shaking loose of said cap is effectually prevented.

My invention further consists in the several arrangements and modifications illustrated in the drawings and hereinafter more specifically described and claimed.

Attention is hereby directed to the drawing, in which similar numerals of designation refer to similar parts throughout the several views.

Figure 1, is a side elevation of my improved sparking device. Fig. 2, is a vertical section of the device shown in Fig. 1, the insulation, however, being shown intact. Fig. 3, is a view of the device shown in Fig. 1, looking at the same from below.

Referring to the drawing, the shield 3, constructed of metal or any other suitable material, is made with an annular seat 4, upon which is placed a gasket or packing 5. Within the said shield is inserted the insulation 6, which is preferably constructed with a taper toward its outside end. A little below the middle portion of said insulation is the enlargement 7, which is shaped to engage with the interior of the shield 3, and to come in contact with the packing 5. The lower portion of said shield is closed by a

cap 8 which is threaded to engage with the same, the cap 8, having the interior opening 9, for the purpose of allowing the lower portion 10 of the insulation 6, to protrude therethrough. On the exterior of the lower portion of said shield 3, a thread is provided for the purpose of permitting the same to engage with the shell electrode 11, which is shaped to be secured to an opening communicating with the combustion chamber, the copper ring 19 separating said shield and electrode at the exposed line of juncture. At the top of said insulation is a cap 12, the rim of which extends down upon said insulation and is soldered to the same. Upon said cap 12, is located the binding screw 13, through which extends (as well as through the said cap 12 and insulation 6), the electrode stem 14, which terminates at the bottom thereof in a sparking point 15, which is in close engagement with the sparking loop 16.

By arranging the parts as above described I am enabled to prevent the insulation from being shaken loose because of the inclosed position of the retaining nut or cap here provided for the purpose. In my device I inclose the said cap within the hollow of the shell 11, where it is impossible to shake the same loose and thus result in the escape of the insulation. Were the opening at the outer portion of the shield 3 made larger and the insulation inserted from above and secured by threaded collar or cap to the shield 3, there would be constant danger particularly where the device is used for motor vehicles that the said collar or cap would become loosened, at which time the insulation is likely to become detached from the shield and to jump therefrom.

I have discovered that in the use of my improved sparking device where the insulation is secured as above specified, there is little or no danger of the insulation working loose, the thread of the shield 3, at its lower portion being of such extent, and the power applied to the nut shaped portion thereof 17, being necessarily so great as to prevent the disassociation of the shield 3, from the electrode shell 11, whereas in respect to the threaded engagement of the cap 8, with the shield 3, it is impossible to secure the same so tightly that it will not work loose to some extent, it being obvious that were the said cap screwed down too firmly it might result in breaking or cracking the insula-

tion or cutting and destroying the screw threads. In my device the said cap being entirely surrounded there is no possibility of the same being shaken clear of the shield and so permitting the escape of the insulation 5 6. It will further be observed that a further advantage of my new arrangement of parts arises from the fact that the alignment of the screw threads is such the stem electrode and insulation may be taken out 10 as a whole, cleaned and replaced without rendering it necessary to make a readjustment of the electrode sparking points, all of the devices now on the market requiring 15 a disassociation and further adjustment of the parts before the said points can be satisfactorily cleaned and replaced.

While I have described my invention with particular reference to the preferred form 20 herein illustrated and described, I by no means desire to limit myself to the specific form of said device, it being obvious that the same could be variously modified without departing from the spirit of my invention. 25

The employment of the loop 16 as a sparking terminal is also important, the ends thereof being embedded in the shell electrode, and there being no exposed points 30 to be bent out of proper position or to expand and contract with the heat or cold and so vary the distance between them.

What I claim and desire to secure by Letters Patent is:

35 1. A sparking device composed of two separable parts, one part consisting of an electrode, an insulating sleeve with an enlargement therein inclosing said electrode, a metallic shield surrounding the same and 40 detachable means for securing said sleeve to said shield by said enlargement, and the

other part consisting of a shell electrode adapted to be secured to and to communicate with a combustion chamber, and shaped to engage with said shield and inclose said 45 detachable means.

2. A sparking device composed of two separable parts, one part consisting of an electrode, an insulating sleeve with an enlargement therein inclosing said electrode, 50 a metallic shield surrounding the same and providing a passageway for said sleeve and enlargement in but one direction, and means for closing said passageway and preventing the escape of said sleeve; and the other 55 part consisting of a shell electrode adapted to be secured to and to communicate with a combustion chamber, and shaped to engage with said shield and inclose said closure 60 means.

3. In a sparking device, a removable terminal consisting of an electrode stem, a tapering insulating sleeve surrounding said stem and having an enlargement therein, a 65 shield having a seat therein encircling said sleeve and engaging with said enlargement, a cap having a shank threaded to engage with said shield below said enlargement and to abut against and secure the same, combined with a shell electrode having its lower 70 end threaded to engage with an opening in a combustion chamber, and having an annular recess therein threaded to engage with said shield and surround and cover the end 75 of the same closed by said cap.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses, this 8th day of October 1910.
 WRAY FALWELL.

Witnesses:
 LILLIAN F. WADNER,
 JOSEPH W. LEWIS.