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SPARKING PLUG.

APPLICATION FILED JUNE 15, 1920.

1,416,907. Patented May 23, 1922.

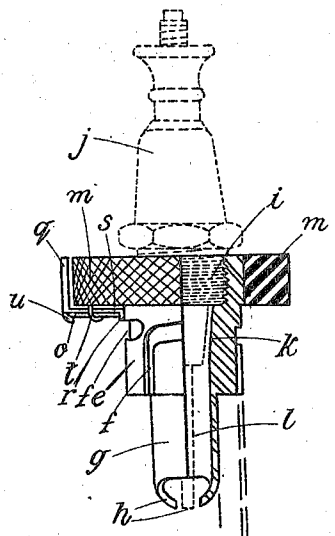


Fig. 1.

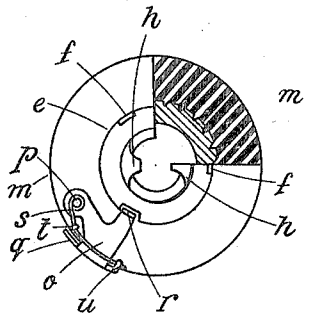


Fig. 3.

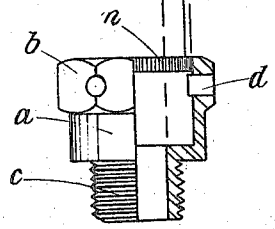


Fig. 2.

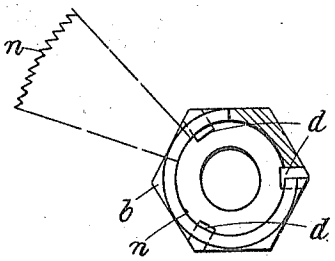


Fig. 4.

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SPARKING PLUG.

1,416,907. Specification of Letters Patent. Patented May 23, 1922.

Application filed June 15, 1920. Serial No. 389,204.

To all whom it may concern:

Be it known that we, SYDNEY ERNEST TAYLOR, FREDERICK OLIVER ELLIS, and GEORGE EDWIN THOMAS ARCHER, all subjects of the King of Great Britain and Ireland, and residents, respectively, of Westcliff-on-Sea, Southend-on-Sea, and Leigh-on-Sea, all in the county of Essex, England, have invented a certain new and useful Improvement in Sparking Plugs, of which the following is a specification.

This invention of improvements in sparking plugs for internal combustion engines has for its object the construction of a plug capable of ready and easy detachment from and attachment to the cylinder, without the aid of tools, and in addition consists of a minimum of parts which can be quickly dismantled for inspection, cleaning and so forth.

And in order that the said invention may be clearly understood, reference is directed to the following description and accompanying sheet of drawings, wherein:—

Figure 1 represents a part vertical section of the hereinafter described inner member according to a practical embodiment of the invention.

Figure 2 is a similar view of the hereinafter described outer shell or adapter.

Figure 3 is a reverse plan of the member seen in Figure 1, partly in section; and,

Figure 4 is a plan view of the member seen in Figure 2.

Like letters of reference indicate corresponding parts in the views.

In carrying out the invention and with reference to the embodiment thereof as illustrated, we employ an outer shell or adapter *a*, see Figures 2 and 4, which is of cylindrical formation with hexagonal or other exterior faces *b*, and a reduced portion *c*, exteriorly threaded, for insertion in the usual threaded aperture of a cylinder or the like. Said shell is formed with three or other number of inward projections *d* (secured thereto or formed therewith). An inner member or body portion, seen in Figures 1 and 3, is provided which has a cylindrical boss *e* adapted to closely fit the shell *a* aforesaid. Said boss *e* has a number of right-angular or other bayonet slots *f* corresponding to the pins *d* of the shell member aforesaid, so that by inserting the body and giving a partial turn, the said body is longitudinally locked in position. The two arms of the slot *f* may be inclined obtusely.

The said body member is hollow and has a reduced neck *g*, furnished with the usual earth electrode or electrodes *h*, and is interiorly threaded at its upper portion *i* to receive a plug proper *j* of any convenient design and indicated by dotted lines in Figure 1. The bore *k* of the interior of the body portion *e* between the thread *i* and the reduced portion *g* may be tapered as illustrated to accommodate a tapered portion of the insulation of the plug proper. The plug proper may thus screw into the body aforesaid at *i* and its central electrode *l* extends into the reduced portion *g* of the shell.

The upper part of the body *e* is furnished with a comparatively wide annular flange *m* preferably of insulating material both as regards current and heat, said flange being for the purpose of operating and handling the body *e*. To this end the flange is knurled or milled on its outer periphery as seen in Figure 1.

To provide against accidental rotation of the body *e* within the shell *a* due to vibration or other causes, any suitable catch device may be employed. As one form of catch, we may employ a slidable or pivoted lever or plate on the undersurface of the handling flange, said lever or plate terminating in a right-angular or other catch which can lie (when pressed in) in a continuation of the bayonet groove, or in a recess specially provided for the purpose. Said catch, however, is normally pressed outwards by a spring or other means. A form of such a catch is illustrated in Figures 1 and 3 of the accompanying drawings, and is hereinafter described.

When the body portion *e* is inserted in the shell *a*, the catch is pressed out of the way, and released when the joint is effected. The right-angular or other catch then springs into engagement with the inner wall of the shell, which is serrated, recessed, notched, or otherwise prepared, as seen at *n* (an enlargement of an effective form of serration being shown in Figure 2), to receive the said catch.

As one form of a catch adapted to be constructed as a metal stamping and as illustrated, the plate *o* is pivoted at *p* to the undersurface of the flange *m* aforesaid and lies flat thereagainst. It has a right-angular roughened thumb-piece *q* lying nearly against

the periphery of the milled face or flange m, and is furnished on its opposite edge with the catch r as above described. A spring s extends from the pivot pin p through a staple t or equivalent and presses against a suitable projection u formed on the plate o. Thus the thumb-piece q is normally pressed away from the milled edge or flange m; the staple t or the like acts as a stop to prevent undue protrusion of the thumb-piece under the action of the aforesaid spring s. When inserting the body e in the shell a, the thumb-piece q is gripped with and pressed against the milled edge, and the locking action is as above described. The operating part q may extend through the disc m as a plunger, actuating the catch r.

We claim:—

1. A spark plug including an attaching shell having a threaded nipple portion for engaging with the threaded opening in the motor and also having a socket provided at its upper edge with an interior annular locking portion, a plug carrying body adapted to be inserted in the socket, means for locking the plug in the socket against axial displacement, and a device mounted on the plug carrying body and having engagement with the interior locking portion of said shell.

2. A spark plug including a shell having a threaded attaching nipple portion and a socket having a locking portion, a plug carrying body adapted to fit in said socket, an offset annular manipulating flange carried by the body, means whereby the plug carrying body and shell may be locked against axial displacement, and a catch device carried by said manipulating flange and having a part projecting into the socket of the shell and adapted to engage with said locking portion of the socket.

3. A spark plug including a shell having a threaded attaching nipple portion and an interior socket, a plug carrying body adapted to fit in said socket and having a manipulating flange, and catch means for holding the said plug carrying body in the shell consisting of a shiftable lever carried by the underside of said flange of the body member, said lever terminating in a keeper portion for engaging in a recess in the bottom member, and a spring for normally pressing said catch member in a direction to engage the inner wall of the said shell.

In testimony whereof we have affixed our signatures hereto this 21st day of May 1920.

SYDNEY ERNEST TAYLOR.
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