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RESISTOR FOR SPARK PLUGS

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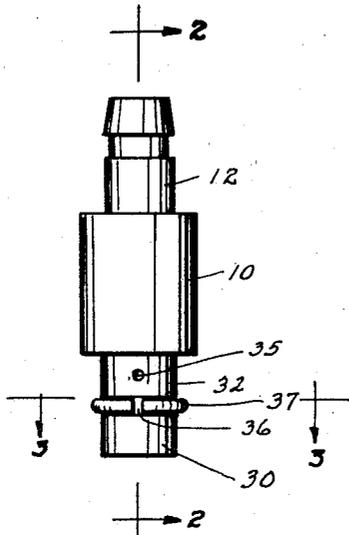


FIG. 1

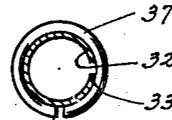


FIG. 3

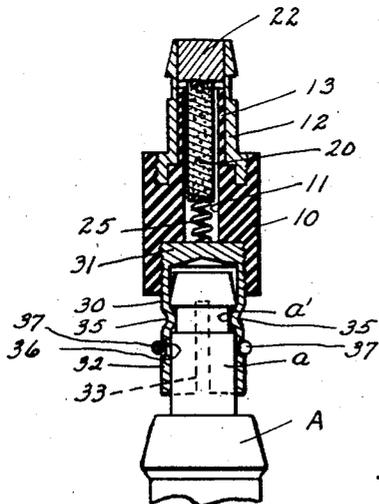


FIG. 2

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# UNITED STATES PATENT OFFICE

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## RESISTOR FOR SPARK PLUGS

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Original application January 16, 1942, Serial No. 427,023, now Patent No. 2,366,757, dated January 9, 1945. Divided and this application May 9, 1944, Serial No. 534,748

3 Claims. (Cl. 201-63)

This application is a division of my copending application, Serial No. 427,023, filed January 16, 1942, now Patent No. 2,366,757, issued January 9, 1945, for a Resistor for spark plugs.

This invention relates to a resisting device adapted to be inserted between an electric conductor and a spark plug to continue the connection and introduce a resistance adapted to suppress a spark at the connection to the plug. Such devices are in use for the purpose of preventing interference with radio reception on an automobile, due to the leakage or other irregular action of the ignition circuit. My invention is concerned particularly with means for mechanically and electrically connecting the resistor to the spark plug, the object being to provide such means in a simple form which may be readily applied in use and will maintain the resistor in place and in good electric connection with the spark plug notwithstanding the jarring due to the travel of the automobile.

In the drawing, Fig. 1 is a side elevation of a resisting device made in accordance with this invention; Fig. 2 is an axial section of the resisting device on the line 2-2 in Fig. 1 and shown as mounted on a spark plug; Fig. 3 is a cross section through the portion which attaches to the spark plug, the plane of the section being indicated by the line 3-3 on Fig. 1.

In Fig. 2, A indicates a spark plug having a stem *a* with an annular groove *a'*. My resistor is adapted to be mounted on the stem of the spark plug by being pushed axially thereon to hold itself in position by friction. This resistor carries a conducting extension having an external contour similar to that of the spark plug, so that the electric cable usually attached directly to the spark plug may now be attached to the resistor.

As shown in Figs. 1 and 2, 10 indicates a cylindrical body of insulating material having a central bore 11 leading from one end thereof. This body carries a metallic sleeve 12 embedded therein at the end where the bore is open, such sleeve extending around and projecting beyond a reduced extension 13 of the body.

Inserted in the bore 11, is a resisting element 20 which may be a round stick of carbon having layers of metal secured across its ends. 22 indicates a metallic plug, which may be of lead, seated in the end portion of the metallic sleeve 12 and in electric connection therewith and forming a conductive abutment for the end of the resisting element 20.

In the bore 11 of the body at the other end of the resisting element, and in electric connection

therewith, is a compression spring 25 bearing against the end of the element 20. This spring is compressed between the resisting element and a suitable abutment 30 which is in electric connection with the part to be attached to the plug. This spring 25, therefore, is itself in good electric connection with the resistor and causes the resistor to be in good connection to the plug 22, thus providing for a continuous conduction from the supply cable embracing the sleeve 12 to the spark plug.

The member 30 which connects the resisting device with a spark plug has a solid head 31 embedded in the insulating body 10 and a sleeve portion 32 extending outwardly in an axial direction and diametrically split as indicated at 33. The head portion of the member 30 is externally knurled to insure effective attachment to the insulating body. The external sleeve portion adjacent the body is indented inwardly in opposed regions, as indicated at 35, to provide shoulders adapted to slide along the stem of the spark plug and into the annular groove *a'* thereof, when the sleeve is in proper position on the stem.

To prevent undue spreading of the split sleeve and maintain it in a position for close frictional engagement with the spark plug stem, I form an annular groove 36 in the exterior of the sleeve beyond the projections 35 and in this annular groove I mount an incomplete annular wire ring 37. This ring allows a slight spreading of the split sleeve as it is put in place, but is sufficiently rigid to prevent undue spreading and thus the sleeve will maintain a tight engagement with the spark plug stem.

It will be seen that the split sleeve is effectively attached in a very simple manner to the insulating body so that the whole device when mounted on the spark plug stem will hold itself effectively thereon. Moreover, by making the head of the sleeve the abutment for the internal spring acting against the resisting element, I insure a good electric connection with a minimum of parts.

I claim:

1. The combination of an insulating body, a resisting element within the body, an external sleeve carried by the body in electric connection with the resisting element, a metallic attaching member adapted to engage a spark plug, said member extending axially into the insulating body and being embedded therein, and an electric connecting member within the body between the embedded member and the resisting element.

2. The combination of an insulating body, a metallic sleeve carried thereby and projecting

from one end of the body, a resisting element within the body and sleeve electrically connected at one end with the sleeve, a split sleeve mounted in the body in axial alignment with the resisting element, the inner end of said sleeve having a solid portion extending across the sleeve, and a coiled compression spring between such solid portion of the sleeve and the inner end of the resistor engaging both of them.

3. The combination of an insulating body, an external metallic sleeve carried thereby and projecting from one end of the body, a resisting ele-

ment within the body in electric connection with said external sleeve, a metallic member projecting from the exterior through the opposite end of the body into the interior thereof and there permanently embedded in the body, said metallic member having externally of the body an integral split sleeve portion, a split ring embracing the sleeve portion beyond the end of the insulation, and a coiled spring of conducting material within the insulation and compressed between the metallic member and the resistor.

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