April 15, 1952 B. H. SHORT ET AL 2,593,205

DISTRIBUTOR ROTOR

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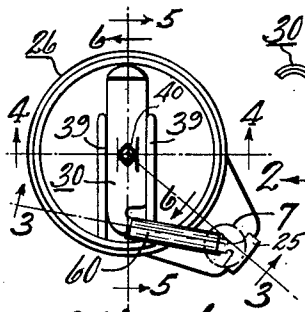


Fig. 1.

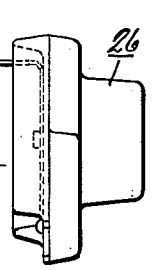


Fig. 2.

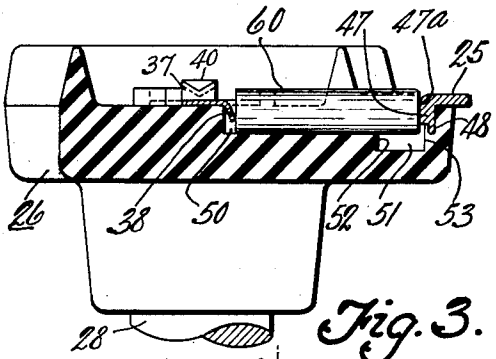


Fig. 3.

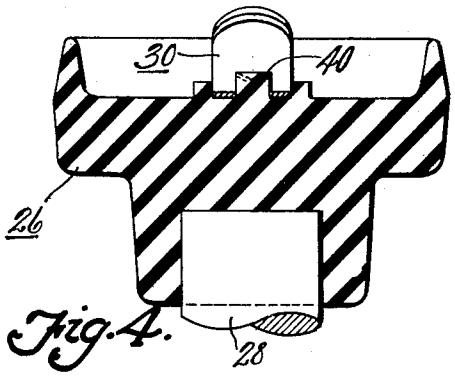


Fig. 4.

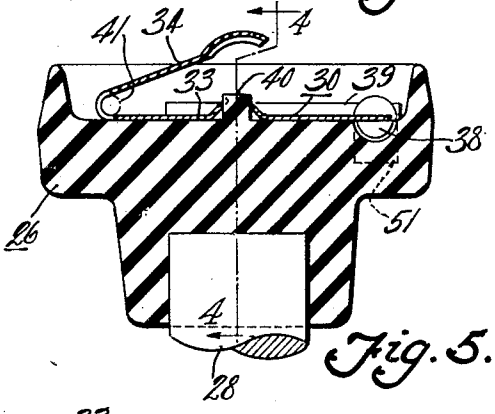


Fig. 5.

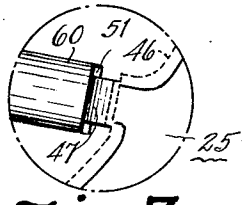


Fig. 7

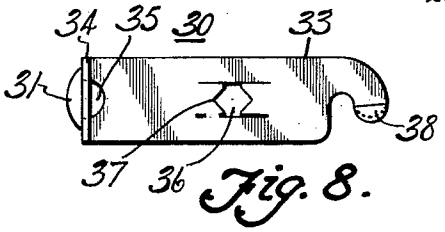


Fig. 8.

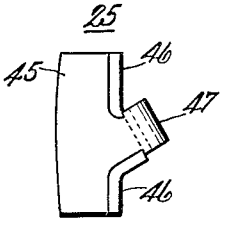


Fig. 9.

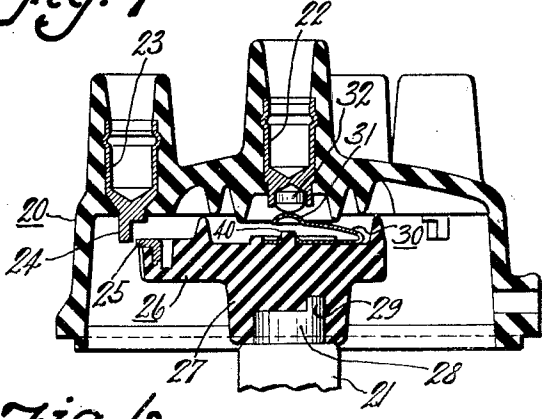


Fig. 6

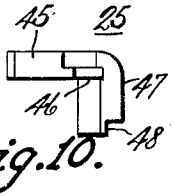


Fig. 10.

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UNITED STATES PATENT OFFICE

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DISTRIBUTOR ROTOR

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Application March 15, 1949, Serial No. 81,432

3 Claims. (Cl. 123—148)

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This invention relates to rotors for ignition distributors used particularly on automotive vehicles.

An object of the invention is to provide certain improvements in the construction of a distributor rotor having a radio interference suppressing resistance in the form of a rod of carbon or other suitable resistance material. The rotor provides for easy assembly of the resistance element in series with a metal distributing segment and a conductor which provides a centrally located button for engaging the center terminal of the distributor cap with which the high tension terminal of the ignition coil is connected. The rotor provides also for the easy assembly of this conductor.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein a preferred embodiment of the present invention is clearly shown.

In the drawings:

Fig. 1 is a plan view of a rotor constructed in accordance with the present invention;

Fig. 2 is a side view thereof in the direction of arrow 2 of Fig. 1;

Figs. 3, 4 and 5 are sectional views on an enlarged scale taken respectively on line 3—3, 4—4 and 5—5 of Fig. 1; Fig. 5 is also a sectional view on line 5—5 of Fig. 4.

Fig. 6 is a sectional view showing the distributor cap and also the distributor rotor in section on line 6—6 of Fig. 1;

Fig. 7 is an enlargement of a portion of the rotor within the dot-dash circle 7 of Fig. 1;

Fig. 8 is a plan view on enlarged scale of the conductor 30 before being bent as shown in Fig. 5;

Figs. 9 and 10 are enlarged scale plan and side views respectively of a rotor segment.

Referring to Fig. 6 a distributor cap 20 adapted to cover a housing (not shown) which supports a rotary timer cam 21, provides a central terminal socket 22 adapted for connection with the cable connected with the high tension terminal of an ignition coil and a circular row of sockets 23 each adapted to be connected with a cable connected with a spark plug. Each socket 23 provides a post 24 past which there rotates a metal segment 25 supported by a non-conducting rotor body 26 having a hub 27 which fits upon extension 28 of cam 21 and is drivingly connected therewith through a lug 29.

The block 26 carries a conductor 30 providing a contact button 31 for engaging a fixed contact 32 attached to the terminal socket 22. The conductor 30 is originally shaped to provide portions

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33 and 34 at right angles as shown in Figs. 1, 2 and 8. Portion 34 provides the button 31. A hole 35 is provided in these portions to facilitate bending one relative to the other. The portion 33 is punched out and partially sheared at 36 to provide notched resilient tanks 37 and is shaped to provide an ear 38 which extends downwardly as viewed in Figs. 3 and 5. The portion 33 of conductor 30 is received between parallel ribs 39. A central stud 40 provided by the rotor body 26 is slightly larger in diameter than the spacing of the tangs 37 of the conductor 30. Therefore, when the conductor is assembled with the rotor body the tangs 37 are deflected upwardly and the edges thereof engage the stud 40, in order to retain the conductor upon the body. Angular displacement of the body is prevented by the ribs 39. Before or after the conductor 30 is assembled with the body 26, the portion 34 is bent relative to the portion 33 so that the angle between these portions will be about 20°. Bending takes place around a rod represented by the circle 41 in Fig. 5.

The distributor segment 25 comprises a horizontal portion 45 having flanges 46 and a vertical portion 47 having a flange 48. The segment 25 is an insert in the mold in which the body 26 is molded. The flanges 46 and 48 assist in anchoring the segment in the molded material. The molded body 26 provides a groove portion 50 having a cylindrical side wall and a deeper portion 51 bounded by spaced flat walls 52 and 53, the latter extending slightly to the right of the surface 47a (Fig. 3) of the vertical portion 47 of the segment 25. The deeper portion 51 provides for the reception of a rotary end-milling cutter applied to the surface 47a to remove any molded material clinging thereto.

The groove portions 50 and 51 receive a suppressor resistance preferably a carbon rod which is copper plated on its ends only and has a resistance of approximately 10,000 ohms. Before the rod 60 is assembled a few drops of adhesive cement are placed in the groove portion 50. The normal spacing of the extreme right end of the ear 38 with respect to the surface 47a of segment 25 is slightly less than the length of the rod 60. Therefore, when the rod 60 is assembled as shown in Fig. 3, the ear 38 is bent slightly in a clockwise direction so that it exerts pressure upon the left end of rod 60 and causes the right end thereof to press against the surface 47a of segment 25, thus making a satisfactory connection between the conductor 30 and the segment 25. The adhesive is preferably a composition of phenolic resin and rub-

ber known as cycleweld. After assembling the rod 60 with the body 26, the rotor is placed in a heated oven to set the cement quickly.

While the embodiment of the present invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted.

What is claimed is as follows:

1. A distributor rotor comprising a body of molded insulating material having a hub which provides for connection with a shaft which rotates it and an arm extending substantially radially from the hub and providing a groove located transversely to the axis of rotation of the rotor and having its inner end located near the periphery of the hub and its outer end located near the outer end of the arm, a leaf spring member providing a resilient arm carrying a contact button located in substantial alignment with the rotor axis and a resilient ear located in the inner end portion of the groove, means provided by the member and hub for securing the member to the hub with its parts thus located, a metal, distributing segment anchored in the rotor and having a surface exposed in the outer end portion of the groove; and a rod of resistance material secured within the groove and located between and in contact with the ear and the segment surface exposed in the groove.

2. A distributor rotor comprising a body of molded insulating material having a hub which provides for connection with a shaft which rotates it and having a flat face transverse to its axis of rotation and spaced parallel ribs and a boss between the ribs, the boss and ribs extending from the flat face, and having an arm extending outwardly from the hub and having a groove, the inner end of which terminates between the ribs near one side of the rotor and the outer end of which terminates near the outer end of the arm, a metal, distributing segment anchored in the rotor and having a surface exposed in the outer end portion of the groove, a leaf spring member having a flat portion located against the rotor face and between the ribs and having a hole through which the boss extends and having resilient tangs which are deflected outwardly from the face when the member is assembled upon the rotor, said tangs engaging the boss to retain the member, and said member having an arm portion providing a contact button in substantial alignment with the rotor axis and having a resilient ear extending into the inner end portion of the groove, and a rod of resistance material secured within the groove and located between and in contact with the ear and the segment surface exposed in the groove.

3. An ignition rotor comprising, a molded body of insulating material, said body having an integral stud disposed between spaced integral ribs on the top face of the body and having a transverse groove; a metal distributing segment embedded in the body and having one end exposed at the periphery of the body and having the other end exposed within the groove; a removable leaf spring supported on the stud and disposed between the ribs to prevent the spring from turning relative to the body, said spring having an integral resilient ear projecting angularly into the groove; a rod of resistance material disposed within the groove and having its opposite ends bearing against the exposed surfaces of the segment and the ear within the groove to establish an electrical connection therebetween; and hardened material disposed in the groove for maintaining the rod therein, the material when in softened condition being placed in the groove and then heated to set the material.

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