

March 29, 1949.

E. C. HALLETT

2,465,447

DISTRIBUTOR SHIELD

Filed Sept. 17, 1945

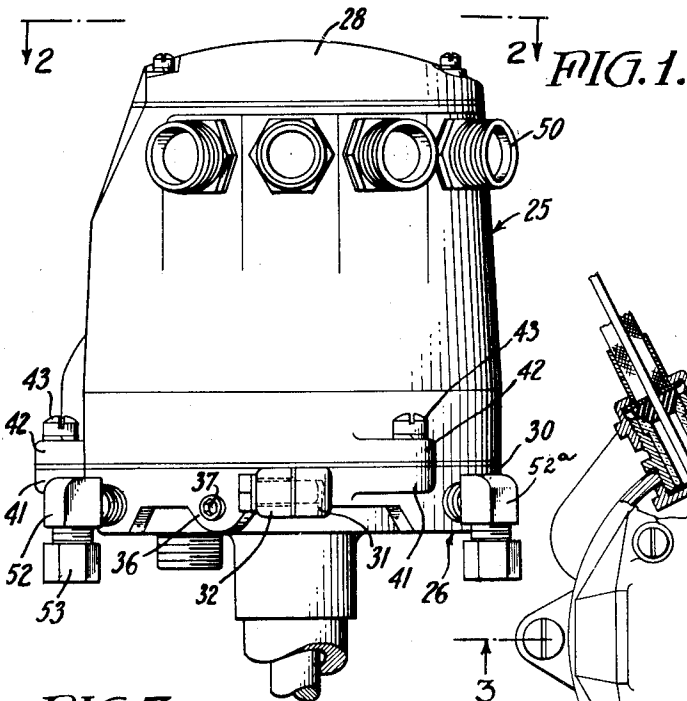


FIG. 1.

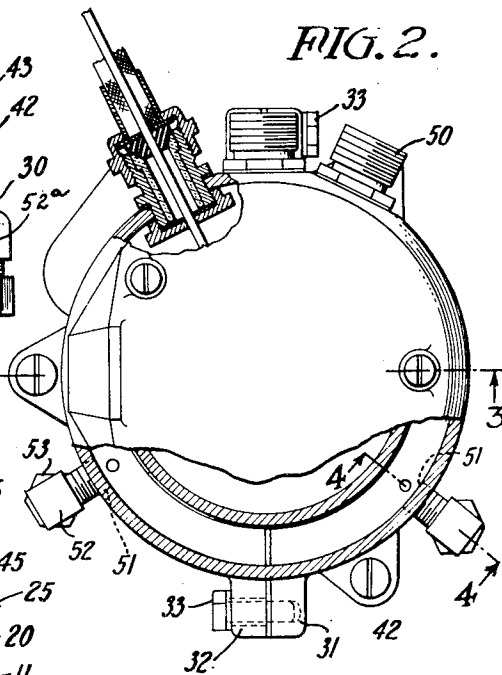


FIG. 2.

FIG. 3.

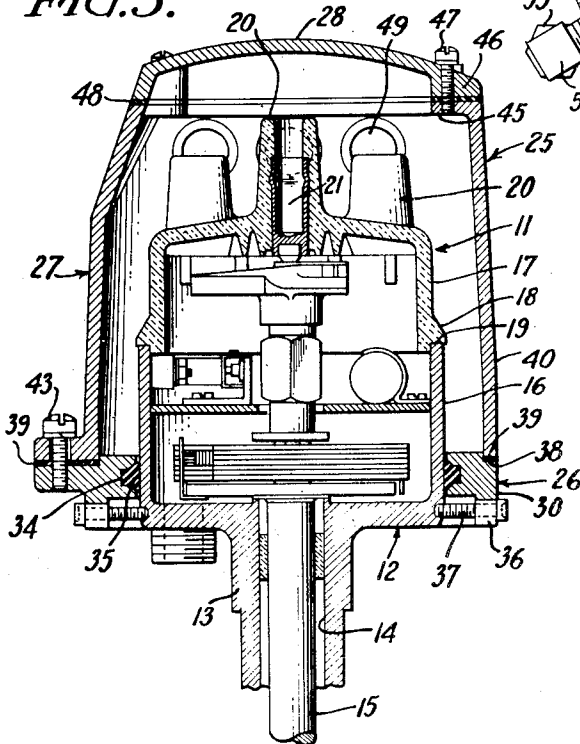
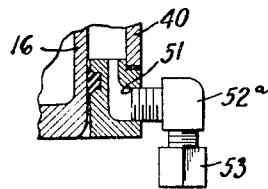


FIG. 4.



INVENTOR.
ELTON C. HALLETT,
BY
Robert A. Juehr
ATTORNEY

UNITED STATES PATENT OFFICE

2,465,447

DISTRIBUTOR SHIELD

Elton C. Hallett, Inglewood, Calif., assignor to
Hallett Manufacturing Company, Inglewood,
Calif., a corporation of California

Application September 17, 1945, Serial No. 616,871

2 Claims. (Cl. 200—19)

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This invention relates to the shielding and protection of electrical systems of internal combustion engines, and more especially to the distributor portion thereof.

The electrical system of an internal combustion engine, and particularly the distributor thereof, produces high-frequency electrical radiations which are picked-up in the radio receiving apparatus which may be carried by the vehicle, and such radiations interfere with satisfactory reception of the radio receiver. This is a serious factor in the operation of vehicles using internal combustion engines, and includes all types of such vehicles, not only automobiles, but also aircraft and marine craft, including motor boats and submarines.

Shielding of a sort has been heretofore employed in an attempt to satisfactorily ground the above-mentioned high-frequency radiations, however, such shielding has been generally deficient in one or more respects, and it is therefore a general object of my present invention to provide a substantially improved shielding for the distributor of an electrical system of the character mentioned.

Many vehicles are required to operate under conditions, wherein rain, snow, or other moisture may be present, occasioned by the elements, and other adverse weather conditions may affect the ignition system due to oil, gas, dirt and the like coming in contact with the distributor parts, and therefore the shielding, which it is an object of this invention to provide, will also protect the distributor and the terminals of the wiring connected thereto from these sources of trouble. The shielding provided by this invention includes means for connecting to the electrical cables, it being understood that the cables themselves are provided with shielding of a similar character.

It is therefore an object of my invention to provide a novel form of physical and electrical shielding for the distributor of an internal combustion engine for protection against adverse weather conditions, which may contribute to the failure of the electrical system.

It is a further and more specific object of my invention to provide a novel shield construction adapted for detachable mounting on a conventional distributor.

Other objects and advantages will appear and be brought out more fully in the following specification considered with reference to the accompanying drawing throughout which like parts are designated by like numerals.

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In the drawing:

Figure 1 is an elevation view of a shield embodying my invention and shown in connection with a distributor.

Figure 2 is a top plan view of the same.

Figure 3 is a sectional elevation view of the same, the section being taken along the line 2—3 of Figure 2.

Figure 4 is a sectional view of a ventilating bore taken along line 4—4 of Figure 2.

Referring more particularly to the drawing, I show a distributor unit 11 comprising a cylindrical base 12 having a hub portion 13 by which the distributor is mounted on a motor vehicle engine, the hub being formed with a bearing bore 14 in which the distributor shaft 15 is rotatably mounted, and on which the rotary parts of the distributor are secured.

Base 12 has a cylindrical wall portion 16 which supports a cap 17 which may be provided with an apron 18 forming a shouldered seat 19 for support of the cap on wall 16. Cap 17 is formed with a plurality of circular bosses 20 which have apertures in which are positioned terminal clips 21 for the electrical cables connected to the spark plugs and ignition coil of the electrical system of the motor.

The distributor shield comprising my invention is indicated at 25 and includes a base 26, a shield 27 and a cover 28. Base 26 comprises a pair of substantially identical and complementary half-ring members 30 which are provided with lugs 31 and 32, lugs 31 being formed with threaded bores and lugs 32 with plain bores to provide clamping by bolts 33.

Members 30 are each provided with an inwardly facing annular groove 34 which may have tapered edge portions if desired, to provide a retaining seat for a sealing ring 35 of rubber or equivalent material, the inner surface of which engages and forms a water-proof seal with the cylindrical outer surface of wall 16. Each member 30 has a downwardly depending flange 36 which is tapped for a set screw 37, by which members 30 are clamped to base 12 by a metallic contact which also serves as an electrical ground connection between members 30 and base 12.

Members 30 each have an angular groove 38 which provides a seat for a thin gasket 39 on which the lower rim portion of wall 40 of shield 27 rests, wall 40 extending partially into grooves 38 and making metallic and electrical contact with members 30. Members 30 are provided with a plurality of tapped clamping lugs 41, and wall 40 is provided with a plurality of complementary lugs

42 having plain bores through which extend clamping screws 43.

Shield 27 has an upper flanged portion 45, and cover 28 has a complementary flanged portion 46 and is adapted to be secured thereto by clamping screws 47, a suitable water-proof gasket 48 being secured between the complementary flanged portions of the shield and the cover. Shield 27 is formed with a plurality of threaded apertures 49 in which are secured conductor cable bushings 50, as shown, openings 49 being disposed circumferentially adjacent bosses 20 at which the electrical conductors connected to the spark plugs and ignition coil terminate.

A pair of threaded bores 51 forming ventilating apertures are provided in members 30, and elbows 52 and 52a, or other suitable fittings, are connected to bores 51, elbow 52 being connected by a pipe to the inlet manifold of the motor vehicle engine, and elbow 52a being connected, if desired, by a pipe through a fitting 53 to a filter or other suitable source of inlet air.

The operation, advantages and objects of my invention should be apparent from the foregoing description. Base 26 is adapted to be clamped to base 12 of the distributor unit 11 which is a conventional distributor, and therefore it will be seen that the shield unit 25 comprising my invention may be readily secured to any conventional distributor of appropriate size. Base 26 is clamped to base 12 by bolts 33, thus contracting half ring members 30 and compressing sealing ring 35 in engagement with base 12 and providing a moisture-proof and dust-proof sealed connection therewith. Set screws 37 effect a metallic, electrical connection between base 26 and base 12 to insure the passage of grounding electrical currents from base 26 to base 12. It will be noticed that set screws 37 are positioned below and separated from sealing ring 35 and thus do not interfere with the seal provided by this ring.

Furthermore, it will be apparent that the lower rim of wall 40 makes a mechanical and electrical connection between shield 27 and base 26, and that clamping screws 43 further provide a mechanical and electrical connection between these elements. A similar mechanical and electrical bond is provided by clamping screws 47 which secure cover 28 to shield 27.

Another advantageous feature of the invention is the ventilating bores 51 in base 26 to which elbows 52 are connected, being in turn connected to suitable pipes for conducting a flow of air into and out of the shield, which pipe connections need not be disturbed when the upper portion of the shield including wall 40 is removed from base 26 to provide access to distributor unit 11.

While I have shown conductor cable bushings 50 extending laterally from shield wall 40 it will be understood that these bushings may, if desired, be provided in cover 28 instead. Positive grounding electrical connection is thus provided by my invention from the conductor cable shielding through bushings 50, cap 28, wall 40 and base 26 to base 12 of the distributor unit which, of course, is effectively grounded.

Although I have herein shown and described my invention in what I have conceived to be the

most practical and preferred embodiment, it is recognized that departures may be made therefrom within the scope of my invention, which is not to be limited to the details disclosed herein but is to be accorded the full scope of the claims so as to embrace any and all equivalent devices.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A shield for a distributor having a cylindrical base comprising a split annular member surrounding a portion of the base, fastening means on the exterior of said member adapted to contract the member against the base, and a radially pressed sealing ring between the member and the base, circumferentially disposed radially directed metallic centering clamping devices cooperable with the member and the base outside of said ring adapted simultaneously to clamp the member in a centered location and to provide an electric contact therebetween, and a cup shaped enclosure having an edge thereof telescopically engaging the annular member at a location spaced outwardly from said ring, a sealing element at the edge, and a metallic fastening means penetrating the sealing element making an electric connection between the enclosure and the member.

2. A shield for a distributor having a cylindrical base comprising a split annular member surrounding a portion of the base, fastening means on the exterior of said member adapted to contract the member against the base, and a sealing ring between the member and the base, radially directed metallic clamping devices between the member and the base outside of said ring adapted simultaneously to clamp the member in place and to provide an electric contact therebetween, a cup shaped enclosure having an edge thereof secured to the annular member at a location spaced outwardly from said ring, a sealing element around the edge, a metallic fastening means circumventing the sealing element and providing an electric contact between the enclosure and the member, circumferentially spaced ventilating inlet and outlet passages means on the annular member at locations between the ring and the sealing element penetrating a space immediately within the enclosure and fittings on said annular member in communication with said inlet and outlet passage means adapted to engage permanent tubing connections.

ELTON C. HALLETT.

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