

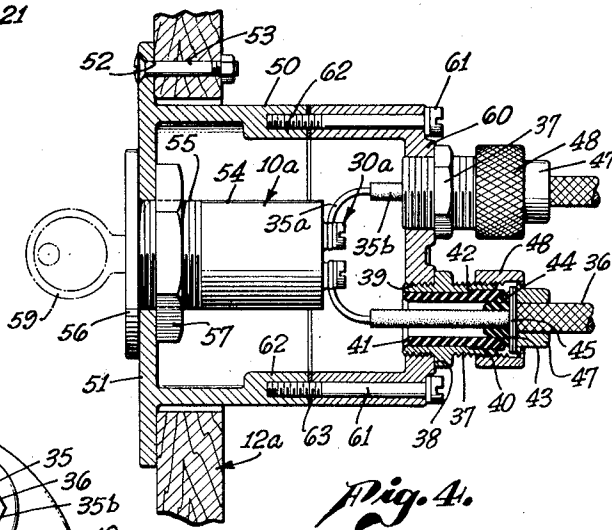
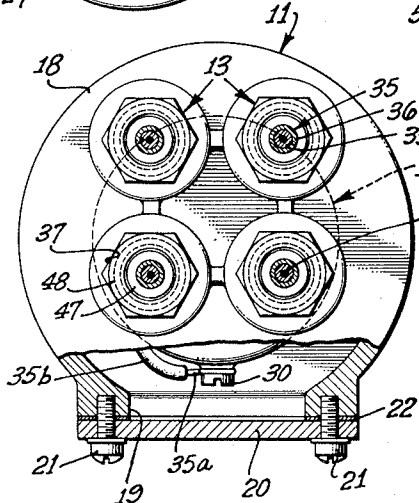
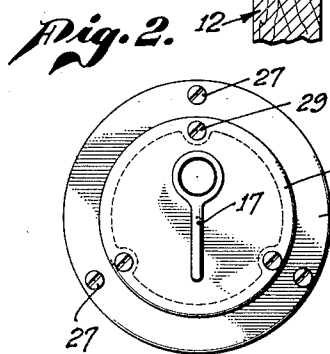
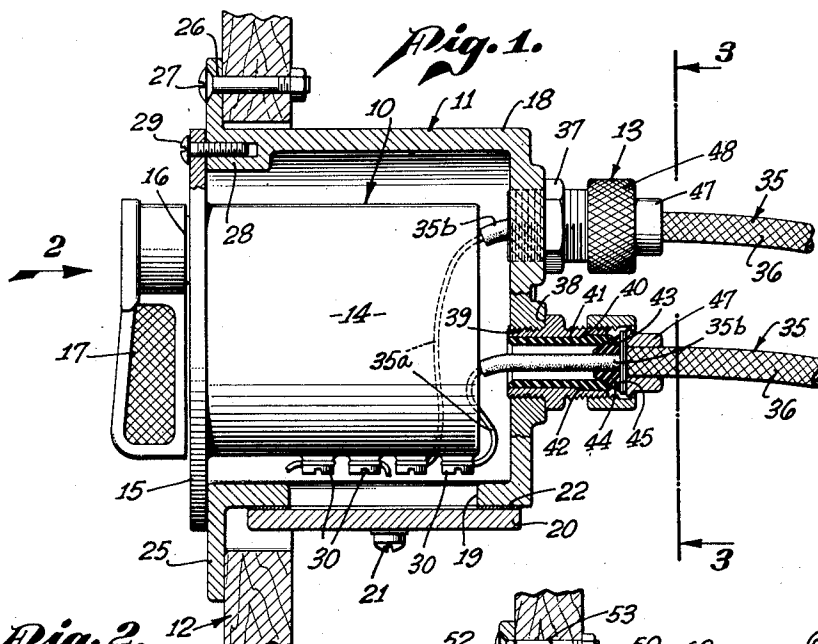
June 5, 1945.

A. HALLETT

2,377,628

BATTERY AND MAGNETO SWITCH SHIELD

Filed June 15, 1942



ALFRED HALLETT,
INVENTOR.

BY
Leibert A. Huebner
ATTORNEYS.

UNITED STATES PATENT OFFICE

2,377,628

BATTERY AND MAGNETO SWITCH
SHIELDAlfred Hallett, Los Angeles, Calif., assignor to
Hallett Manufacturing Company, Inglewood,
Calif., a copartnership

Application June 15, 1942, Serial No. 447,076

3 Claims. (Cl. 200-168)

This invention relates to the shielding and protection of electrical systems for internal combustion engines and is an improvement over my copending application Serial No. 427,621, filed January 21, 1942, for Shielding for electrical systems.

Free electrical radiations from ignition systems of internal combustion engines used in proximity to radio receiving apparatus are picked up in such apparatus and interfere with reception. This is a serious factor in the operation of airplanes, motorboats, submarines, military land vehicles, and all other types of mobile transportation employing radio equipment as well as in stationary installations in proximity to radio equipment.

Having made a general disclosure of an improved form of shielding and terminals therefor in my said copending application, it is an object of my present invention to provide more specifically a novel form of shield for a battery and magneto switch utilizing in connection therewith the form of terminal disclosed in the aforesaid copending application.

Another problem arises in connection with the exposure of the elements of ignition systems to weather, oil and gas leakage and the like. Under heavy duty and adverse weather or operating conditions moisture, water, oil and gas may be deposited on the switches, terminals, etc. unless protected by moisture-proof and water-proof enclosures. Inasmuch as cables must lead to various parts of the switches such protective means should include the regions where the cables enter the protective housing.

It is therefore another object of my invention to provide an electrical shielding which combines the function of physical protection to the elements of the switch against weather and other adverse operating conditions which contribute to failure of the switch, deterioration of insulation, connections, etc.

It is a further and more specific object of my invention to provide a metallic shielding for the battery and magneto switch of an ignition system which completely encloses and grounds the same, avoiding openings or cracks through which electrical radiations might escape, effecting improved electrical connections at the terminals and physical protection of the switch against the external conditions described.

It is a still further and more particular object of my invention to provide a novel form of metallic shield for a battery and magneto switch which can be applied to the standard or conven-

tional form of switch without altering the latter, and enable the assembly to be installed on a panel or dash with but slight change from the standard installation.

These and other objects of my invention will be made more apparent from a consideration of the full description and drawing.

In the drawing:

Figure 1 is a vertical cross-sectional view of my novel shield applied to a battery and magneto switch, such for example as a standard Halcott switch.

Figure 2 is a reduced front view of the same, as shown by the arrow 2 of Figure 1.

Figure 3 is a rear view of the same taken on the line 3-3 of Figure 1.

Figure 4 is a vertical cross-sectional view of a modified form of shield adapted to a different style switch, such for example as a standard Chrysler switch.

Referring to the form of assembly shown in Figures 1 to 3, I show a standard battery and magneto switch 10 enclosed within a metallic housing 11 mounted upon a dash or panel 12, and utilizing terminals 13.

The switch 10 contains a standard contact mechanism, not illustrated, located within a switch casing 14, the latter of which is formed with a mounting flange 15 and through which operates the rotating spindle 16 of a switch handle 17.

My shield housing 11 of material having substantially high conductive properties, comprises a substantially cylindrical box 18 with an opening 19 for access to the connections hereinafter described, the opening being closed by a flat plate 20, which may be attached to the box 18 by screws 21. Optionally a gasket 22 may be used to seal the closure plate 20 upon the box.

The box 18 is open at the front to receive the switch casing and the opening is bounded by an annular flange 25 which is tapped at 26 to accommodate bolts 27 by which the assembly is mounted upon the panel or dash 12. The wall of the box 18 is enlarged at spaced points by bosses 28 which are tapped and threaded to accommodate screws 29 by which the flange 15 of the switch is securely mounted upon the shield housing. It will thus be seen that no alteration of the switch is necessary for installing it in the manner described.

Standard switch connections 30 are employed to which are connected cables 31, the latter comprising a conductor 31a, insulating 31b and metal shielding 31c.

The shielding illustrated here is in the form of a woven metal sheathing but a tubular enclosure or other equivalent shielding for the cable 35 may be employed.

All of the terminals are of the same character. Each comprises a metal collar 37 formed with an annular shoulder 38 threaded into an opening 39 in the end of the shield housing.

This collar has an internal annular ledge 40. Snugly fitting within the collar is an insulator 41 having a shoulder 42 seating on the ledge 40, and being formed also with a beveled seat 43 at the upper end. Resting in this seat is a frusto conical insulating gland 44 preferably of soft rubber. A metal bushing 45 having a cylindrical portion through which the cable extends and a flat disc at the lower end is seated on the upper face of the gland 44. It is preferable that the cylindrical portion of the bushing be inserted between the cable shielding 36 and the insulation 35b of the cable. The lower end of the shielding 36 should be spread out over the disc portion of the bushing and a ferrule 47 having a flange at its lower end rests upon the out-turned shielding and serves to center the cable. A threaded cap 48 screws down on the collar 37 to secure the various parts tightly in place.

In the modified form shown in Figure 4 the main portion or base of the shield housing is numbered 50 and is formed with an open front to receive the switch casing and this opening is bounded by an annular flange 51 tapped at 52 to accommodate bolts 53 by which the housing is clamped upon the panel or dash 12a.

The switch 10a which is of a different type and is here illustrated as a standard Chrysler switch has contact means, not illustrated, located within the tubular casing 54 which is threaded at 55 and also provided at its outer end with a mounting flange 56. A nut 57 operating on the threads 55 serves to clamp the switch upon the flange 51 of the shield housing. An ignition key 59 is illustrated in dotted lines. Switch connections 30a are shown at the rear end of the switch casing and from these connections cables are led away through terminals of the same character as illustrated and described in reference to Figures 1 to 3.

The terminals in this modified form are mounted in the rear part or cover 60 of the shield housing, which, though a separate member, is in substance a continuation of the cylindrical base housing 50, and which is secured upon the base housing 50 by screws 61 extending into threaded bosses 62 in the base housing. Optionally a gasket 63 may be employed to seal the base portion 50 and the cover portion 60 of the shield housing.

In both forms of my invention the terminals are locked securely to the shield housing securing an efficient and satisfactory connection with the switches and providing a moisture-proof entry of the cable into the housing as well as a complete grounding of the metal cable shielding to the housing.

Thus I have achieved a battery and magneto switch shield assembly, the switch of which assembly is completely enclosed in a structural sense as a protection against water, oil, and dirt, and completely shielded electrically by a housing which has high conductive properties and which is positively connected with the cable shielding serving to dissipate into the ground all electrical radiations occurring in the unit.

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 structures.

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

1. In combination with a battery and magneto switch which includes a switch casing enclosing the movable contact elements of the switch and a flush mounting flange extending from the casing, a shield adapted for flush mounting on a panel comprising a housing of substantially high conductive properties enclosing the switch casing and having an opening in one end for the casing to extend through but not large enough for the switch casing flange to pass through, an annular flange bounding said opening and having a face in overlapping engagement with the switch casing flange, means adapted to clamp the switch mounting flange upon the said face of the housing flange, and moisture-proof and water-proof cable terminals and cables entering the housing said cable terminals establishing an electrical connection between the housing and metal shielding on the cables.

2. In combination with a battery and magneto switch which includes a switch casing enclosing the movable contact elements of the switch and a mounting flange extending from the casing, a shield adapted for flush mounting on a panel comprising a housing of substantially high conductive properties enclosing the switch casing and having an opening in one end for the casing to extend through but not large enough for the switch casing flange to pass through, an annular flange bounding said opening and having a face in overlapping engagement with the switch casing flange, means adapted to clamp the switch mounting flange upon the said face of the housing flange, and moisture-proof and water-proof cable terminals and cables entering the housing said cable terminals establishing an electrical connection between the housing and metal shielding on the cables, said housing being provided with a removable section rearwardly of the housing flange by which access may be obtained to connections between cables and the switch, and said housing providing a water-proof and moisture-proof enclosure for said switch casing.

3. In combination with a battery and magneto switch which includes a switch casing enclosing the movable contact elements of the switch and an annular mounting flange extending radially from the casing, a shield adapted for flush mounting on a panel comprising a housing of substantially high conductive properties enclosing the switch casing and having an opening in one end for the casing to extend through but not large enough for the switch casing flange to pass through, an annular flange bounding said opening and having a face in overlapping engagement with the switch casing flange, means adapted to clamp the switch mounting flange upon the said face of the housing flange, means adapted to attach said housing flange upon said panel, and moisture-proof and water-proof cable terminals and cables entering the housing said cable terminals establishing an electrical connection between the housing and metal shielding on the cables.

ALFRED HALLETT.