Aug. 20, 1935. C. KERR 2,011,768

ELECTRIC LOCK

Filed Feb. 1, 1928

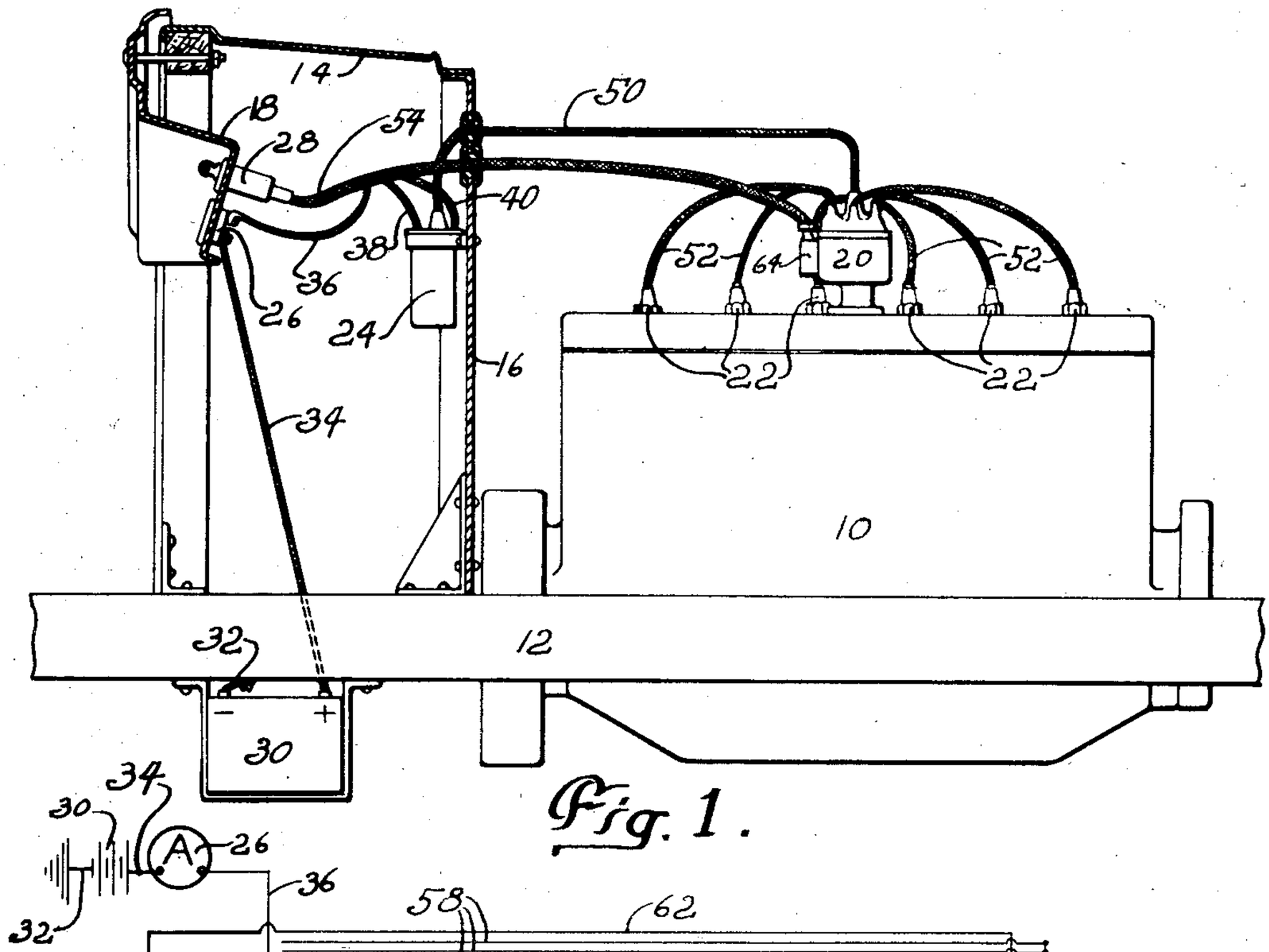

Fig. 1.

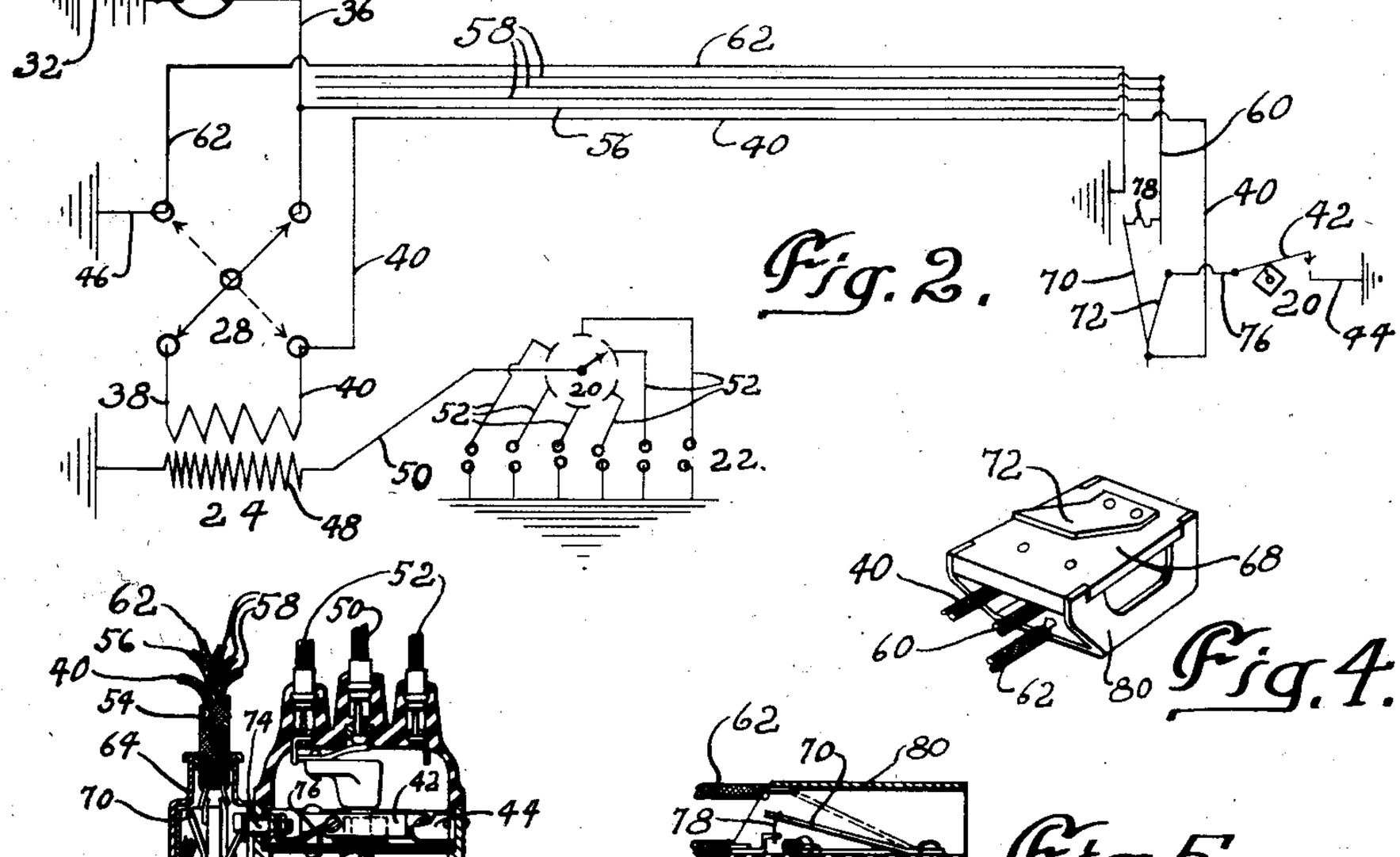

Fig. 2.

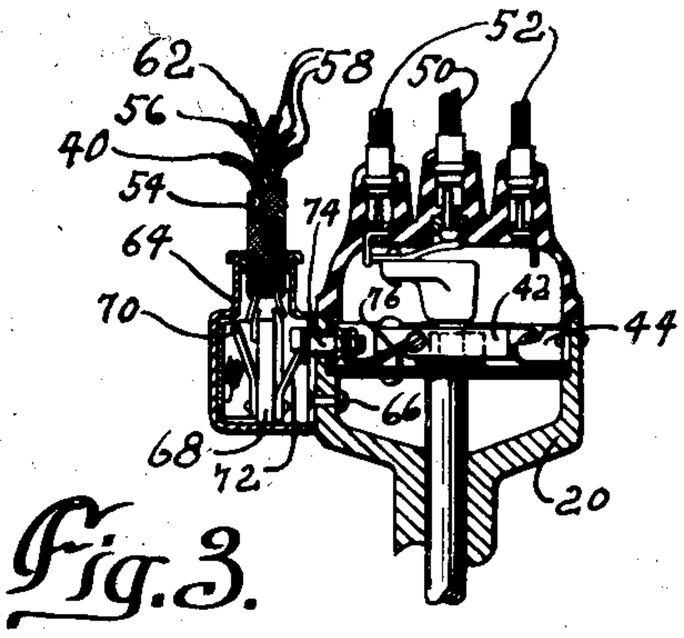

Fig. 3.

Fig. 4.

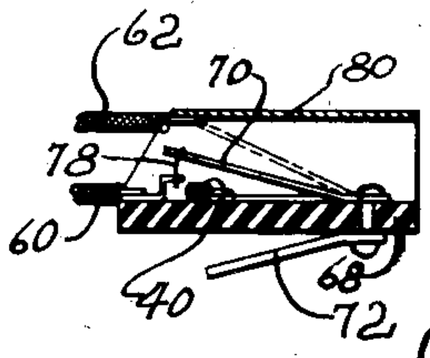

Fig. 5.

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ELECTRIC LOCK

Cort Kerr, Detroit, Mich.

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1 Claim. (Cl. 200—19)

This invention relates to improvements in electric locks and more particularly to a lock for use in connection with the ignition system of an automobile.

Heretofore switch locks have been provided in the electrical circuit of the ignition system and the function of such has been to complete the circuit through the ignition system, when in the "on" position and to ground the circuit, when in the "off" position. Electrical connections to a relay mechanism in the circuit have been arranged in connection with the lock such that when the connections are tampered with the relay operates to ground the ignition system thereby making the ignition system inoperative.

It is an object of this invention to improve the mechanism for automatically grounding the ignition system when the lock or connections thereto are tampered with.

Another object of the invention is to materially reduce the cost of such a mechanism and to provide a more simple and dependable mechanism.

Other objects and advantages will more fully appear from the following description taken in connection with the accompanying drawing in which:

Fig. 1 is a fragmentary side view of an automobile, partly in section, showing an adaptation of a suitable locking system to which my invention is adapted.

Fig. 2 is a wiring diagram, showing diagrammatically the various parts of the system and their connections.

Fig. 3 is a sectional view through the distributor and the grounding mechanism.

Fig. 4 is a perspective of the grounding mechanism.

Fig. 5 is a sectional view through the grounding mechanism.

On the drawing, I have shown an engine 10, supported in an automobile frame 12, and a portion of a body comprising a cowl 14, dash 16 and instrument panel 18. The engine is provided with the usual distributor 20 and spark plugs 22. The ignition coil 24 is shown on the dash 16, an ammeter 26 and lock switch 28 are supported on the instrument board 18 and a battery 30 supplies the current to the system through a ground connection 32 from one terminal of the battery 30 to the frame 12 and through a lead 34 from the other terminal of the battery 30 to the ammeter 26.

Referring to Fig. 2 wherein the leads have been shown more clearly, the circuit for the ignition system when the lock switch 28 is in closed position or "on", flows from the battery 30 through lead 34 to the ammeter 26; from the ammeter 26 through lead 36 to switch 28, primary winding 38 of the coil 24, lead 40 and through breaker points 42 and 44 of the distributor 20, to ground. When the switch is in the "off" position, the coil 24 and distributor 20 are grounded; the lead 40 being connected to the ground lead 46 through the lock switch 28. The circuit to the spark plugs 22, through the distributor 20 and secondary winding 48 of the coil 24 is usual; the induced current in the secondary 48 flowing through lead 50 to the spark plug terminals 52, through the plugs 22 to ground and back through secondary winding 48.

The lead 40 has been enclosed in a cable 54 extending from the lock switch 28 to the distributor and enclosed in the cable 54 are other leads which may be termed "dummy" wires. One of these leads 56 is connected to the lead 36, and three others 58 are connected to a common lead 60 in my improved grounding mechanism, hereinafter more fully described. Another ground lead 62 is enclosed in the cable 54. It is to be understood that one "dummy" lead 58 may be used but to further complicate the wiring within the cable 54 three have been shown.

Referring to my improved grounding mechanism, I have provided a housing 64 which receives one end of the cable 54 and is adapted to be secured to the other side of the distributor housing by rivets 66. An insulating member 68 is supported in the housing and is provided with inter-connected resilient contact members 70 and 72. The contact member 72 engages an electrical connection 74 through the distributor and it in turn is connected to the movable breaker point 42 through wire 76. The contact member 70 is connected to the lead 60, under tension, through a connection 78 of fusible material. The insulating member 68, upon which are mounted the contact members 70 and 72, is carried in a metallic casing 80 which engages the housing 64 forming a ground connection. To further assure a ground connection, the lead 62 has been secured to the casing 80. The contact member 70 is adapted to be held away from contact with the casing 80, or ground, by the fusible member 78, but when the fusible member is broken the contact member 70 engages the casing 80 and grounds the lead 40 or distributor 20.

If any of the leads are disturbed such as to complete a circuit through the fusible material 78, the fuse is broken and the contact member

grounds the distributor thus making starting impossible. The circuit through the fusible material **78** may be accomplished through several connections when the lock switch **28** is in "off" position. If the cable is cut by a metallic instrument any one of the leads **58** may be connected to the lead **56** completing a circuit from the positive side of the battery through lead **56**, any one of the leads **58**, lead **60**, fuse **78**, contact member **70** to ground, either through the distributor or the lock switch **28** through lead **40**. This current is sufficient to break the fusible member **78** and when broken the distributor becomes grounded.

Assuming that the fuse **78** was not broken by the cutting through the cable, such as by cutting one wire at a time, it would be practically impossible to connect the lead **56**, the positive lead, with the proper lead **40**, and then the primary coil **38** of the circuit would be grounded and out of the circuit. If the lead **56**, the only lead in the cable which is not grounded, is connected to any of the leads **58** the fuse is broken by the current and the distributor grounded.

If an attempt is made to wire around the grounded primary coil **38**, such as by running a lead from the ammeter **26** to one side of the primary coil after its connection to the lock switch has been broken, it is practically impossible to connect the opposite side of the primary coil with the proper lead **40**. If the connection is made to lead **62**, the primary coil is grounded, if connected to one of the leads **58** the fuse is broken by the current flowing therethrough to ground. If the lead is connected to the lead **56** there is not a completed circuit.

It will be understood that the fusible link provides an inexpensive mechanism for automatically grounding the ignition system thereby causing it to be inoperative when the connections forming a part of the ignition system are tampered with.

Various changes, including the size, shape and arrangement of parts of my improved device may be made without departing from the spirit of my invention and it is not my intention to limit its scope other than by the terms of the appended claim.

A device of the class described comprising, a distributor having conducting and nonconducting parts, a housing adapted to be secured to said distributor, a contact member within said housing, means for supplying electrical current to said contact member and to said distributor, a resilient contact member electrically connected to a conducting part of said distributor and adapted to contact with the wall of said housing, and a fusible link normally holding said resilient contact member out of engagement with the wall of said housing.

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