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AUTOMOBILE LOCK

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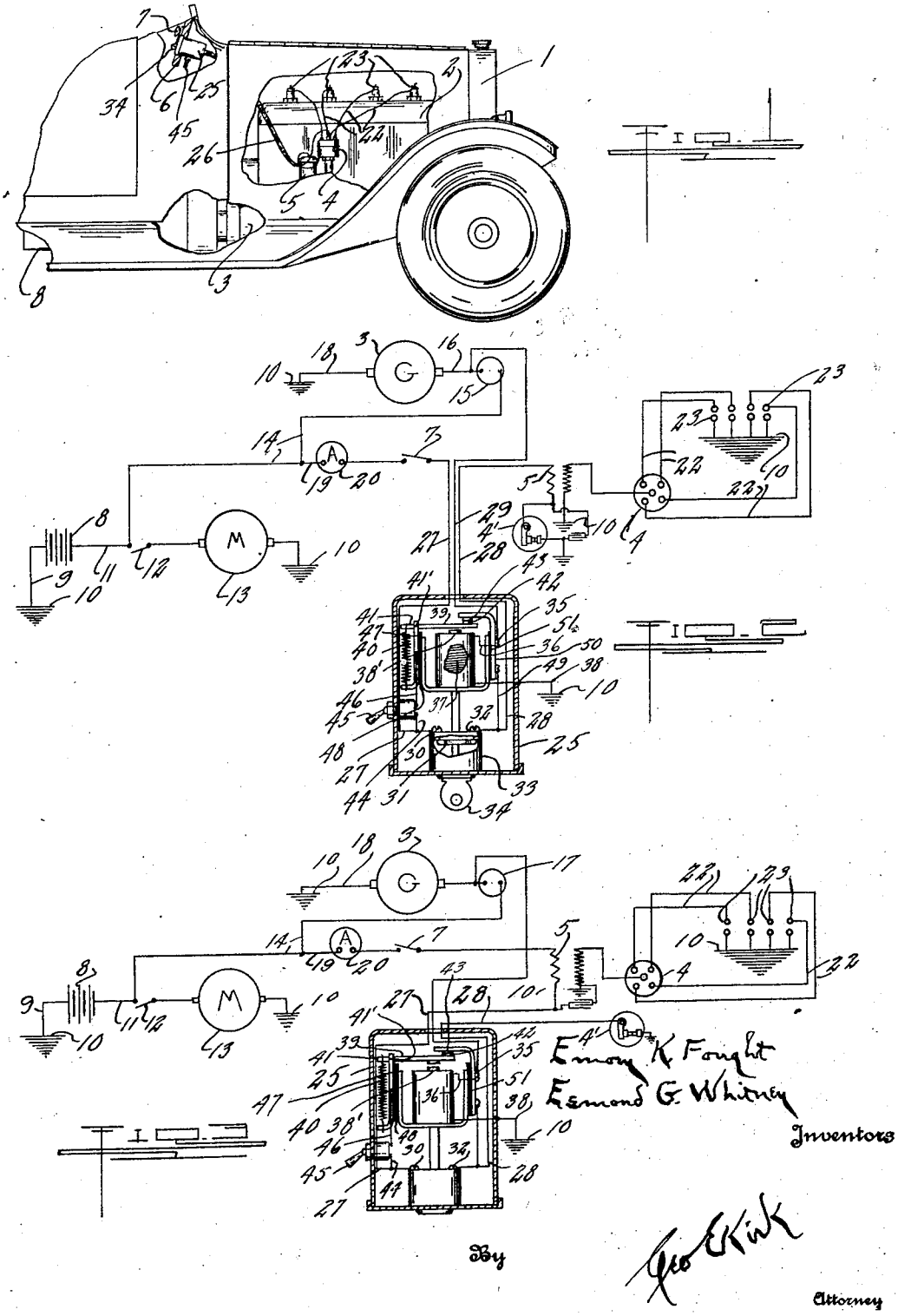

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AUTOMOBILE LOCK.

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This invention relates to restricted control of apparatus, especially as involving electrical devices.

This invention has utility when incorporated in a motor vehicle safety lock, more particularly for co-action in the ignition circuit of internal combustion engines.

Referring to the drawings:—

Fig. 1 is a fragmentary view of a motor vehicle having an embodiment of the invention incorporated therewith;

Fig. 2 is a wiring diagram of the invention, the device being shown with parts broken away; and

Fig. 3 is an additional wiring diagram showing the apparatus having its unit differently connected to the engine from the showing in Fig. 2.

Motor vehicle 1 is shown as provided with multi-cylinder internal combustion engine 2 normally connected to drive generator 3 in the ignition circuit which circuit is pro vided with distributor 4 and induction coil 5. The instrument board 6 is provided with ignition lock switch 7. Carried by the motor vehicle 1 is storage battery 8 having line 9 therefrom to ground 10 with the motor vehicle chassis.

From this battery 8 extends line 11 past starting switch 12 to starting motor 13. From the line 11 there is line 14 extending past circuit breaker 15 by line 16 to generator 3 normally having its shaft actuated by the operation of the engine. From this generator 3 extends line 18 to ground 10 in completing its circuit. This battery 8, or the generator 3, during the operation of the engine for driving, serves as a current supply by way of line 19 past a current meter 20 to the ignition lock switch 7. Distributor 4 has branches 22 to the various spark plugs 23. A step-up transformer or induction coil 5 is in the circuit between the ignition switch 7 and the distributor 4.

In carrying out the invention hereunder, this ignition circuit between the switch 7 and the distributor 4 has placed therein a wiring assembly including the device of this invention. Housing 25 is preferably mounted on the dash or instrument board 6 and has extending therefrom conduit 26 of the wiring assembly. In this conduit 26 are conductor lines 27, 28, 29. The lines 27, 28, may extend to the ignition switch 7 and the coil 5 or to the coil 5 and the interrupter 4'.

The line 27 enters the housing 25 and extends to terminal 30 where it may be connected by a contact 31 with terminal 32. This contact 31 is in housing or box 33 and is shown as operable by a lock having a key 34. The line 28 extends to terminal 32. The line 29 connected to the line 16 from the generator 3 extends to insulated terminal 35 in the housing 25 and has therefrom line 36 to winding 37 with the circuit therefrom completed by line 38 to ground 10.

With the contact 31 providing communication between the terminals 30 and 32, the closing of the ignition switch 7 will cut in the ignition circuit for normal operation for starting and running the engine 2. The line 29 from the generator 3 has current flowing therethrough to the winding 37. As the motor 2 is idling there is insufficient amperage to render the winding 37 effective through its core 38 for operating armature 39 against the resistance of spring 40. The spring 40 is connected to arm 41 of the armature pivoted on fulcrum 41'. This spring 40 normally holds the armature lever 39 closed at contacts 42, 43, at this switch in the circuit by-passing the switch at the contact 31. From the line 27 adjacent the terminal 30 extends line 44 past manually operable toggle switch 45 to line 46 connected to spring carrying member 47 which serves to mount the fulcrum 41'. This member 47 has insulation mounting 48. From the line 28 adjacent to the terminal 32 extends line 49 to the member 50 carrying contact 43. This member 50 is mounted on insulation block 51 in the housing 25.

With the ignition switch 7 closed, the lock contact 31 in open switch position and the key 34 withdrawn, the motor 2 may have idling operation. However, should an unauthorized person attempt to drive away in the automobile, in so doing a load would be put on the motor by giving fuel so that it would pick up. This brings about a flux of increased current in the line 29 from the generator 3 which energizes the coil 37 sufficiently to open the switch 42, 43. This automatically opens the by-pass about the contact 31 for the lines 27, 28, and thereby causes an interruption in the circuit to the coil 5 or to the distributor 4. This causes the motor to puff or seemingly misfire in a manner imitating engine action due to lack

of fuel or ignition trouble. The engine at once drops in speed, thereby reducing the current in the line 29. The spring 41 recloses the by-pass switch 42, 43. The motor will thus have its circuit closed for continued idling. Building up generator action occurs at accelerating of the motor. When motor driving attempt is continued, the device of this invention will repeat the automatic strangling of the ignition circuit and will continue so to do as often as the motor is speeded up.

The installation of this safety unit is one which may be readily accomplished in the usual type of motor vehicles which have a separate generator from the motor and which include a storage or secondary battery. To this end from the side of the generator not to ground and between such side and the relay, there is connected a line to this device through a coil to ground. It will thus be seen that there is no energizing of this coil from the storage battery because it is isolated from the battery by the relay.

When the car motor is started to operate the generator, the initial starting does not at once open the relay, so for such interval there is but slight current flow through the coil at the device as developed by the generator. When the speed of the motor is sufficient to cut in the relay, there is charging current.

In practice, it is desirable to have the coil in this device one which will be effective on its armature before the relay acts. This armature shifting by the coil is one which is connected to affect the ignition circuit and is located on either side of the ignition coil between the ignition switch and the circuit breaker. Accordingly when the coil of the device opens its switch, there is at once a breaking of the ignition circuit causing the motor to slow down and when such slowing down results in the decreased speed of the generator to such extent that the coil does not hold the switch open, there is effected a re-closing of this circuit from the ignition switch to cut in the ignition for keeping the motor idling.

By the operation of the key to the device this ignition circuit line is cut in independently of this switch of the coil so that the vehicle may be operated normally.

This action may lead the car thief or unauthorized one to believe there is a lack of fuel for the motor. In this manner the invention herein is an effective safeguard against driving of motor vehicles under their own power. It is thus seen that the ignition switch 7 may be left closed and the use of the car restricted by the operation of the contact 31 either by tumbler or key type of lock.

The contact 31 may be left in switch closed position and a minor subterfuge adopted for the car safety in the form of the manually operable switch 45 concealed by the instrument board 6.

The device of this disclosure is one which may be installed generally, even as an accessory, with its simplified wiring assembly and may be interposed as suggested herein for its switch connection with the automatic control affecting such switch with such automatic control connection from the generator.

What is claimed and it is desired to secure by Letters Patent is:

1. A theft prevention control for an internal combustion engine having an ignition circuit, a generator actuable by the engine, a switch, a line from said generator having means therein affected by generator operation to open said switch only when said generator is actuated by the engine running at a higher than idling speed, and manually shiftable means for rendering said ignition circuit effective independently of disturbance by generator operation.

2. An internal combustion motor, an ignition circuit therefor including a generator actuable by the motor, a switch in said circuit, a line from said generator isolated for receiving current supply only from the generator operation for operating said switch only when said generator is actuated by the engine running at a higher than idling speed, and manually shiftable means for rendering said ignition circuit effective independently of disturbance by generator operation.

3. An internal combustion motor, an ignition circuit therefor including a coil having a primary winding, a generator actuable by the motor providing a current supply for the circuit, a switch in said circuit between said coil and winding, and a line isolated for receiving current supply only from said generator operation for operating said switch only when said generator is actuated by the engine running at a higher than idling speed, and manually shiftable means for rendering said ignition circuit effective independently of disturbance by generator operation.

4. An internal combustion motor propelled vehicle having a generator, an ignition circuit supplied by said generator, a theft prevention control device for the motor including a line to said generator having means therein operated by said generator for opening said line upon predetermined generation by the generator, manually shiftable means for rendering said ignition circuit effective independently of disturbance by generator operation, and a winding in the circuit to which said line extends.

5. An internal combustion motor propelled vehicle having a generator, an ignition circuit supplied by said generator, a line to said generator, a winding in said circuit

to which said line extends, a theft prevention winding actuated switch, and a manually controlled switch for by-passing said winding.

6. An internal combustion motor propelled vehicle having a generator, an ignition circuit supplied by said generator, an ignition switch for cutting in said circuit, and a theft prevention control device for the motor including a line to said generator, means in said line operable by predetermined generation by the generator, a winding in said circuit to which said line extends, and in addition to said ignition switch a manually controllable lock for cutting in the device for rendering the device effective for restricting motor operation with the ignition switch closed.

7. An internal combustion motor, an ignition circuit therefor including a coil, an ignition switch, a generator actuable by the motor and providing a current supply for the circuit, a switch device in the circuit, a line isolated for receiving current supply only from said generator operation for operating said switch device at predetermined generation by the generator, and means for theft prevention providing a lock for the switch device for rendering the device effective for restricting motor operation with the ignition switch closed.

8. A motor vehicle having an ignition circuit, a generator for supplying said ignition circuit actuated by said motor, and a theft prevention auxiliary circuit embodying a switch for cutting in said auxiliary circuit permitting the ignition circuit to function during motor idling and rendering said ignition circuit ineffective upon higher speeds, and a manually controllable lock for rendering the auxiliary circuit not effective and modifying the ignition circuit.

9. An internal combustion engine propelled motor vehicle, an ignition circuit therefor including a generator operated by the vehicle engine, a winding, a switch for connecting the generator for supplying current to the winding, an electric controller for the switch effective at above engine idling speed operation of the generator for opening said switch, and a manually controllable lock for rendering the winding not effective and modifying the ignition circuit.

10. An internal combustion engine propelled motor vehicle, an ignition circuit therefor including a generator operated by the vehicle engine, a winding, a circuit for connecting the generator for supplying current to the winding, an electric controller for the circuit effective at above engine idling speed operation of the generator, and a manually controllable lock for rendering the winding circuit not effective and modifying the ignition circuit.

11. A theft prevention unit including a lock, a coil switch to be cut in and out by said lock, conductor connections for the coil, a generator to which said connection extends for operating the switch, a motor, an ignition circuit therefor rendered ineffective by motor speeding up to cause the generator to operate the coil switch in thereby opening said ignition circuit, and additional conductor connections from the unit to be controlled by said switch and lock.

12. A theft preventing unit including a lock, a first switch, a coil for the switch to be cut in and out by said lock, relay means, a generator, conductor connections from between the relay means and generator to the coil, an ignition switch, a circuit breaker, and means for placing said first switch between said ignition switch and said circuit breaker.

In witness whereof we affix our signatures.

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