

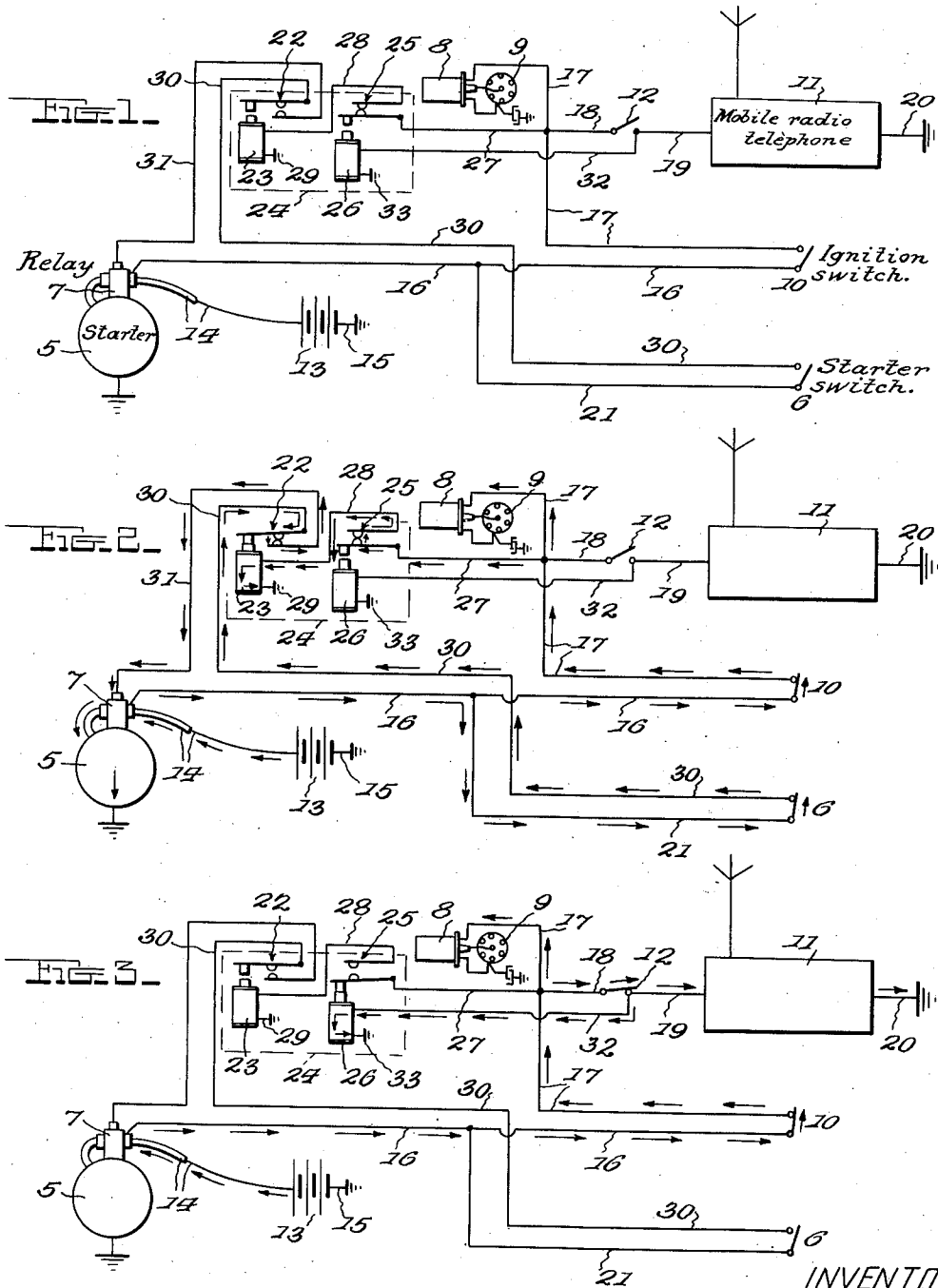
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STARTER CIRCUIT CONTROLLING MEANS

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STARTER CIRCUIT CONTROLLING MEANS

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1 Claim. (Cl. 307—10)

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This invention relates to means for controlling the starter circuit of a motor vehicle equipped with a radionic receiver, and by this term "radionic receiver" it is intended to encompass not only an ordinary car radio which receives only, but a mobile radio telephone which both receives and transmits, as in police cruisers, military vehicles, taxicabs, and service trucks.

Heretofore, there has been no provision to prevent starting the automobile or the like with the switch of the radionic receiver turned on. It has of course been customary to provide for automatic breaking of the electronic receiver circuit upon opening of the ignition switch to stop the motor, but re-closing of the ignition switch for car starting if the radionic receiver switch has been left turned on while the car is standing, will again complete the circuit of the radionic receiver. Not only does this throw an additional load on the battery when starting but it may be otherwise very undesirable at that particular time to have the receiver "blast forth."

The present invention aims to overcome the above mentioned undesirable conditions by making novel provision for preventing closing of the starter circuit while the switch of the radionic receiver remains closed, thus prohibiting use of the starter until this switch is opened.

A further object of the invention is to accomplish the above end by providing an auxiliary starter switch which must occupy "closed" position when the usual starter switch is closed, in order to cause operation of the starter, and by providing electrical means controlled by the radionic receiver switch for effecting "open" position of said auxiliary starter switch to prevent starter operation, if an attempt be made to start the car with the electronic receiver turned on.

A still further object of the invention is to provide for automatic breaking of all required circuits when the ignition switch is turned off and for re-establishing any circuits necessary to carry out the desired functioning, upon re-closing of the ignition switch.

With the above and other objects in view that will become apparent as the nature of the invention is better understood, the same consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawing, and claimed.

In the drawing:

Figure 1 is a diagram showing the proper normal relation of elements while the car is standing idle,

Figure 2 is a similar view showing that the

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starter may be operated whenever the electronic receiver switch occupies open position, and

Figure 3 is a similar view showing that the starter cannot be operated while the electronic receiver switch is closed.

A conventional starter motor is indicated at 5 on the drawings, and a manually closable switch for said starter is shown at 6. This switch may be of push-button or any other type and in the present disclosure may be considered as controlling a relay 7 to bring the starter 5 into operation.

The coil and distributor of an ignition system are indicated at 8 and 9, respectively, and the ignition switch is shown at 10.

An electronic receiver is indicated at 11 in the form of a mobile radio telephone and its off-and-on switch is shown at 12.

The car battery is indicated at 13, the main lead cable at 14, and the ground strap or cable at 15.

All of the elements 5 to 15, inclusive, may be considered as conventional. Likewise the wire 16 from lead 14 to ignition switch 10, the wire 17 from switch 10 to coil 8, the shunt wire 18 from the wire 17 to switch 12, the wire 19 from switch 12 to the radionic receiving means 11, and the ground 20 from said receiving means 11, may be considered as conventional or at least indicative of the conventional. The same is true of the wire 21 leading to starter switch 6 from the wire 16.

An auxiliary starting switch 22 is provided, said switch 22 being of a self-opening normally-open type provided with an electromagnetic device 23 for closing it when energized. Adjacent this switch 22 and preferably mounted or encased therewith as indicated by the dotted lines 24, is a self-closing normally-closed switch 25, this switch 25 being provided with an electromagnetic device 26 for opening it when energized. A wire 27 leads to switch 25 from wire 17, and a wire 28 extends from said switch 25 to the closing device 23 of switch 22, a ground for this device 23 being shown at 29. A wire 30 extends from the starter switch 6 to the auxiliary starter switch 22, and a wire 31 extends from this switch 22 to the relay 7. A wire 32 leads from the output side of the switch 12 to the opening device 26 of the switch 25, and a ground for this device 26 is shown at 33.

Normally with the car standing idle, if the receiver 11 has been turned off, the various elements stand as seen in Figure 1 with all circuits broken. Upon closing of the ignition switch 10,

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with the receiver switch 12 still open (see Figure 2) the ignition circuit through 14, 16, 10, 17, 8 etc., will be completed as indicated by some of the arrows in Figure 2. Also the circuit for the closing device 23 of switch 22 will be completed through 27, 25 and 28, thereby closing switch 22 which, it will be recalled, is an auxiliary starting switch. Now, still referring to Figure 2, it will be seen that the circuit of starter 5 will be completed upon closing of the starter switch 6, the current then flowing to said starter switch 6 through 16 and 21 and from said starter switch through 30, 22, and 31.

It will be seen from the above that the starter 5 may be operated and the car started if switch 12 be open at the time of making the attempt. However, if this switch 12 be in closed position at the time of making an attempt to start the car, the situation depicted in Figure 3 will exist. From this view it will be seen that upon closing of the ignition switch 10 with switch 12 closed, the circuit of the switch-opening device 25 will be completed through 18, 12, and 32, thereby opening the switch 25 and preventing the closing device 23 from closing the auxiliary starter switch 22. Therefore, when the starter switch 6 is closed, the starter cannot operate, as the current must flow through both starter switches 6 and 22 in order to cause starter operation. It is thus impossible to operate the starter 5 and start the car with the switch 12 of the radionic receiver 11 in closed position, accomplishing the desired end.

It is to be understood that the diagrammatic nature of the drawing and the description thereof are to a large extent illustrative rather than limiting, and that wiring systems other than that shown could well be employed within the scope of the invention as claimed.

What is claimed, is:

In a device of the kind described, an auto-

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mobile starting motor, a relay controlling the current through said motor, a source of current supply conductively connected to said motor through said relay, an ignition switch, a starter switch, conductive connection means connecting one terminal of each switch in multiple to said relay, a normally open circuit closer, a conductive connection between said relay and one terminal of said circuit closer, a conductive connection between the other terminal of said circuit closer and the starter switch, said circuit closer including a normally deenergized magnet, a conductive connection between said relay and the remaining terminal of said circuit closer, a normally closed switch, a conductive connection between one terminal of said magnet and one terminal of the normally closed circuit closer, the remaining terminal of said magnet being grounded, said last circuit closer including a normally deenergized magnet closing said circuit closer when energized, one terminal of the last mentioned magnet being grounded, a normally open conductive connection between the other terminal of the last magnet and the other terminal of the last mentioned circuit closer, means to close said last connection, a branch conductive circuit connecting the last mentioned circuit connection and the remaining terminal of the ignition switch and an ignition device connected to said branch circuit.

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