

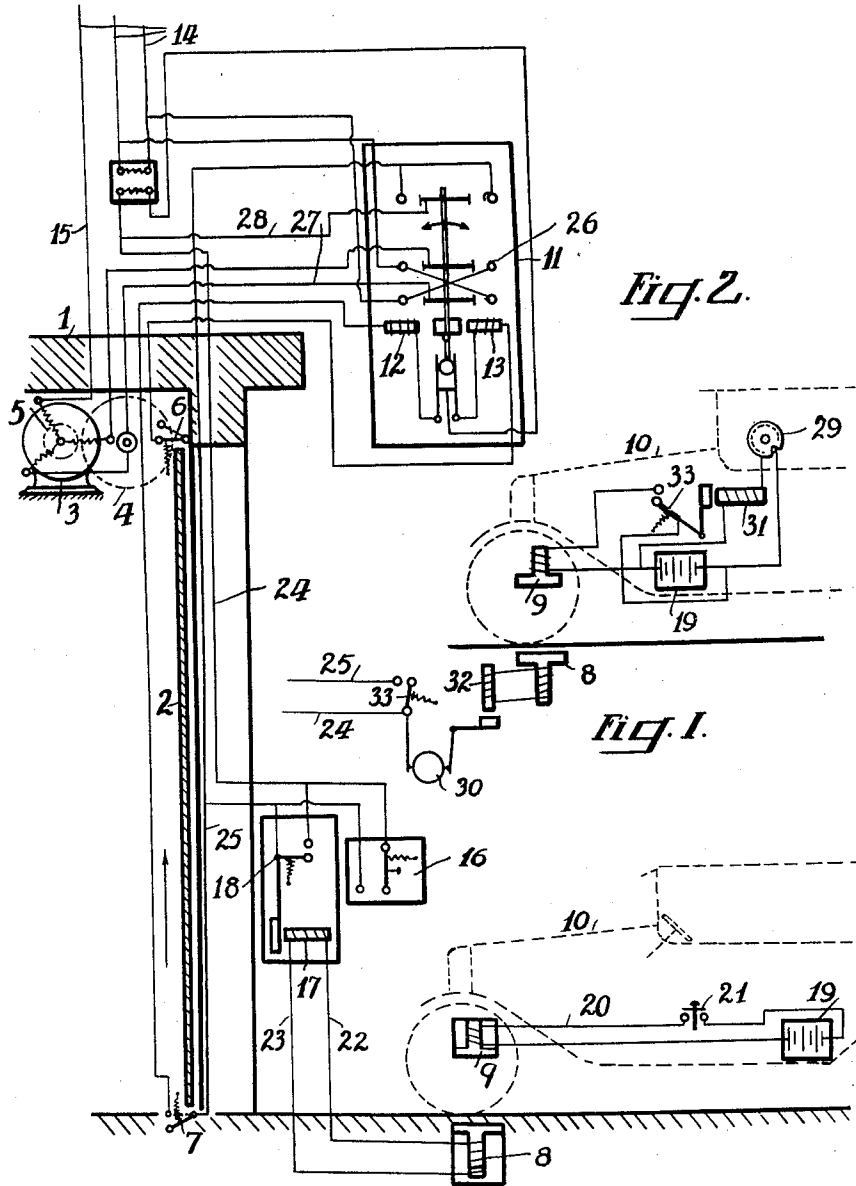
Nov. 14, 1933.

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1,935,017

MEANS FOR THE ELECTROMAGNETIC OPENING OF DOORS FROM A DISTANCE

Filed July 25, 1931



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UNITED STATES PATENT OFFICE

1,935,017

MEANS FOR THE ELECTROMAGNETIC
OPENING OF DOORS FROM A DISTANCE

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Application July 25, 1931, Serial No. 553,142,
and in Switzerland July 31, 1930

2 Claims. (Cl. 268—33)

The present invention relates to electro-magnetic means permitting of actuating a door, more particularly a garage door, from the driving seat of a vehicle without electrical or mechanical connection between the latter and the motive member of the door.

The accompanying drawing given by way of example shows a constructional form of the device with modification for the locking means by the use of a selector.

Fig. 1 is a general diagrammatic view of the device and Fig. 2 a modification of the working of the electro-magnets by means of a selector disk as is usual in automatic telephones.

The diagrammatic view, Fig. 1 shows a stationary installation mounted in a garage and a movable installation mounted on the motor vehicle.

The garage 1 shown in section through its open door, is closed by means of a door 2 of well known type and capable of opening and closing by means of an electro-mechanical installation comprising a motor 3 coupled to the door by a clutch mechanism 4—5. This mechanism is combined in such a manner that when not de-clutched the door is locked in every position.

At the end of the opening and closing movement of the door 2 is disposed a switch 6 and the opening of which is insured by the position of the door and which closes automatically by means of a return spring as soon as the door liberates the knife of the switch.

In the pathway in front of the garage door and in the passage of the vehicle, is sunk in the ground an electro-magnet 8, in the form of a contact plate which acts through induction when a second electro-magnet 9, mounted on the motor vehicle 10, passes over it in the position shown in the diagram.

Within the garage is disposed a small box 11 enclosing two electro-magnetic relays 12, 13 which actuate a reversing mechanism by crossing the phases in order to change the direction of rotation of the motor.

The device is fed by a supply lead 14 on the tri-phase system, coming from the distribution sector and between two phases of which is intercalated a transformer 15, reducing the pressure for feeding the relay circuits.

To permit of the operation of the door without having to act upon the part of the device arranged on a vehicle, a switch 16 is placed in the entrance to the bay which can also be operated by a Yale key or the like.

The electro-magnet 8 is connected to a relay 17 the armature of which actuates a switch 18 which brings into circuit according to the position of the door, the electro-magnetic relays 12 or 13.

The movable installation disposed on the motor vehicle comprises, as above stated an induction electro-magnet 9 secured to the chassis and connected to a source of current such as a battery of accumulators 19. In the circuit 20 between the electro-magnet 9 and the battery 19 is inserted a switch 21.

The operation of the device is as follows. When the vehicle 10 arrives in front of the garage and the electro-magnets 8 and 9 are more or less in the same vertical plane the chauffeur presses on the switch pedal 21 to close the circuit between the battery 19 and the electro-magnet 9. The induced current produces in the windings of the electro-magnet 8 an induced current which is transmitted by the leads 22, 23 to the relay 17, the armature of which is attracted and closes the secondary circuit of the transformer 15, thus sending the current through the lead 24 to the lead 25 connecting the switch 6 for the end of the movement to the electro-magnetic relay 13 the core of which attracts the armature of the central lever of the reversing device 26 causing it to lean to the right. Current passes through the reversing device 26 and through the connections 27 and 28 to the terminals of the motor 3 which in starting up opens the door 2. When the door is completely open the switch 6 at the end of the stroke is released by interrupting the action of the relay 13, the oscillating lever returns to its median position and the motor stops. On the other hand by the opening movement of the door the lower switch 7 returns under the action of the spring into its closing position thus preparing the circuit for effecting the closing of the door.

The closing of the door is effected in the same manner. The switch 7 being closed and the switch 6 open, the current is sent to the relay 12 which will actuate the commutator in the opposite direction by reversing the current and causing in this way the door to close.

In order to permit of actuating the door without having to have recourse to the device disposed on the vehicle, a switch 16, of push button type closes the circuit 25, 24 thus substituting itself for the action of the relay 17, 18.

There are however cases where it is desired to obtain the inviolability of the closing of the garage, by a special locking device in order to en-

sure the impossibility of actuating the device by a non-authorized person. A modification of this kind, shown in Fig. 2 makes use, for this purpose of a numbering disc 29 with selector 30, similar to those used for automatic telephones. The electro-magnet 9 through the intermediary of the armature 33 of the relay 34 transmits as many electric impulses as the chauffeur of the vehicle emits when he composes a number by means of the numbering disc 29. The electric impulses received by the electro-magnet 9 change to magnetic impulses which will be transmitted by induction to the electro-magnet 8 in which they will again be transformed into electric impulses, transmitted by the conductors 22, 23 to the winding 32 of a selector 30 of an automatic telephone. When it has attained the number for which it is adjusted the finding contact of the selector 30 closes through the conductors 24 and 25, as in the previous construction, the relay circuit 12 or 13 according to whether the door is open or closed.

A de-clutching member not shown in the drawing is provided between the motor axle and the door control in order that if there should be a breakdown in the electric current supply, the door can be freed and actuated by hand by appropriate means such as winches, counterweights

and so on according to the type of door and the mechanism used in combination with the motor. I claim:

1. In means for controlling motor circuits, an induced electromagnet in the ground disposed in the path of a vehicle, an inducing magnet carried by the vehicle, a wire circuit supplying current to said inducing magnet, an electromotor, a wire circuit feeding said motor, a commutator switch in said wire circuit for controlling the same, a relay for controlling said commutator switch, said relay being operated by the induced current, automatic switches actuated by a closure, said switches controlling the wire circuit of the commutator switch, means for reversing the current and solenoids for controlling the movements of said closure.

2. In means for controlling motor circuits as claimed in claim 1, a number disc carried by the vehicle, a battery carried by the vehicle in circuit with said number disc, means carried by said number disc for breaking said circuit, a selector for collecting the pulsations, a relay carried by the vehicle, said relay being in circuit with said battery and a switch carried by the vehicle for interrupting the induced current.

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