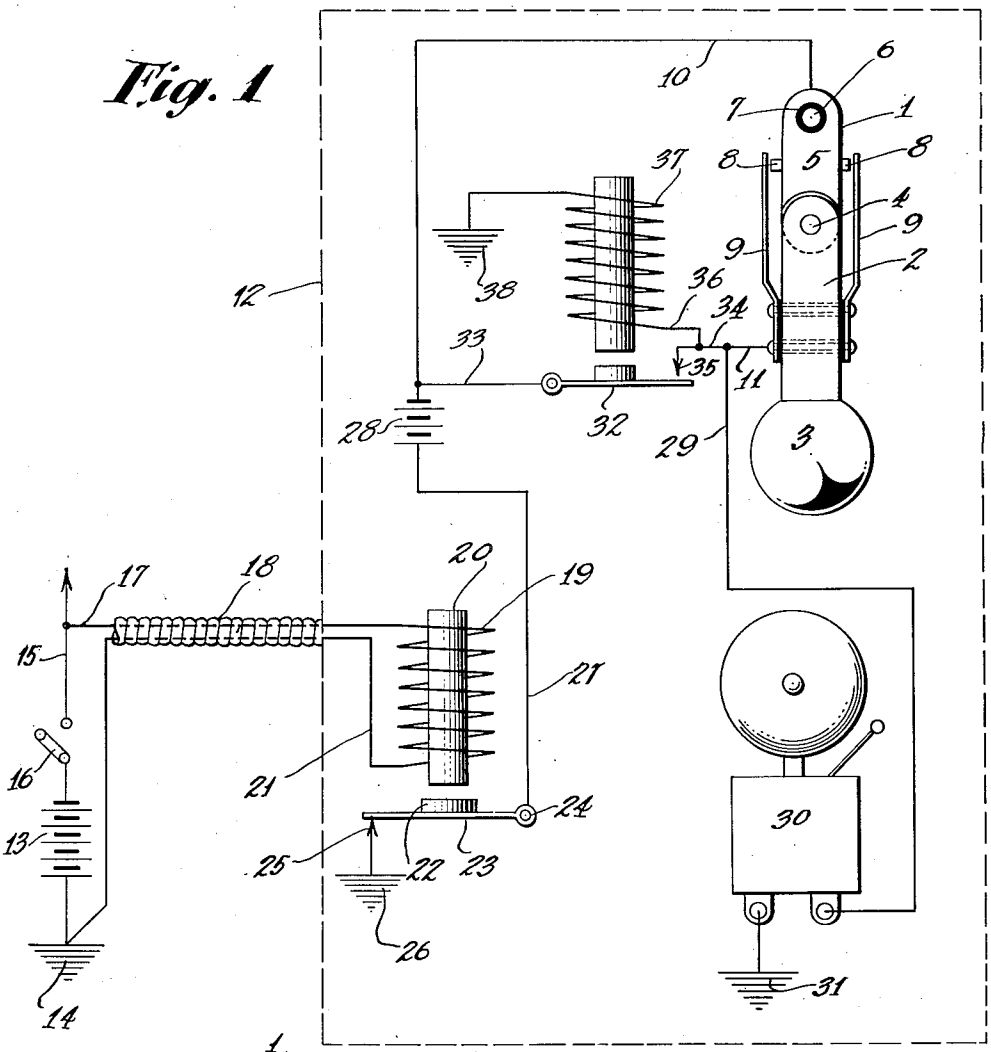
Jan. 5, 1926. 1,568,509

C. H. KOLLING ET AL

THEFT ALARM SWITCH FOR AUTOMOBILES

Filed Nov. 10, 1923

Fig. 1



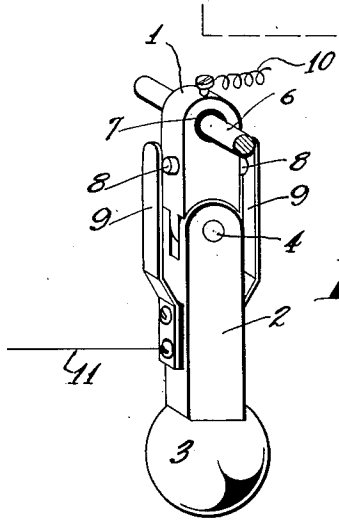


Fig. 2

INVENTOR.
Charles H. Kolling
BY Reinhold Prietz
Jas. H. Griffin
ATTORNEYS.

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UNITED STATES PATENT OFFICE.

CHARLES H. KOLLING AND REINHOLD PRIETZ, OF JERSEY CITY, NEW JERSEY, ASSIGNORS OF THREE-EIGHTHS TO OSCAR O. LAUCKNER, OF HOBOKEN, NEW JERSEY, AND THREE-EIGHTHS TO OSCAR A. WEISSENBORN, OF JERSEY CITY, NEW JERSEY.

THEFT-ALARM SWITCH FOR AUTOMOBILES.

Application filed November 10, 1923. Serial No. 673,869.

To all whom it may concern:

Be it known that we, CHARLES H. KOLLING and REINHOLD PRIETZ, citizens of the United States, residing at Jersey City, county of Hudson, and State of New Jersey, have invented a certain new and useful Theft-Alarm Switch for Automobiles, of which the following is a specification.

This invention is intended for use on motor vehicles and its purpose is to cause the giving of an audible alarm when the motor vehicle with which it is associated is tampered with or started by unauthorized persons, the object being to apprise persons within hearing of the alarm that a theft is being perpetrated.

The invention consists in situating upon a motor vehicle an audible alarm element such for example as an electric bell and associating with the bell an electrical circuit including devices which, when the vehicle is moved, will automatically effect the operation of the alarm element. The signal operating circuit is controlled through one or more gravitating members preferably operating after the manner of one or more pendulums suspended upon different axes and each of which carries at least one contact forming parts of the electrical control circuit. The contacts are normally spaced apart through the gravitation of the pendulums into vertical position, but if the car is started the pendulums will oscillate and in so doing will cause the contacts to engage and close the operating circuit whereby the bell will ring. The invention may therefore be said to be based upon the power of gravity to maintain the contacts in spaced relation so far as the axes of the pendulums are stationary and to close the circuits when the stability of the pendulums is disturbed through movement of the axes thereof. When two pendulums are operating as described the contacts will engage only momentarily and in order to keep the audible signal operating after this operation has been started a relay or maintaining device is preferably employed so that when the operating circuit is once closed, it will remain closed to keep the alarm sounding until the system is turned off by some authorized person.

The alarm and its mechanism are preferably housed within a sealed casing of sufficient strength to preclude a thief from rendering the system inoperative before attempting to steal a car with which it is associated so that all of the operating parts are housed and protected within the closed casing and tampering therewith precluded.

An important feature of the present invention resides in the sensitiveness of its control, it being impossible to operate the car no matter how careful the thief may be without causing the giving of an alarm and this despite the fact that the mechanism is unusually simple and sturdy and will not get out of order.

Features of the invention other than those adverted to will be apparent from the hereinafter detailed description and claims, when read in conjunction with the accompanying drawings.

The accompanying drawings illustrate different practical embodiments of the invention, but the constructions therein shown are to be understood as illustrative, only, and not as defining the limits of the invention.

Figure 1 shows a system embodying the present invention in diagrammatic form.

Figure 2 shows the form of gravity actuated control element illustrated in Figure 1.

Referring to the drawings 1 designates the controlling element of the device. This controlling element is shown in these figures as embodying, generally speaking, a pendulum 2 weighted as shown at 3 and pivoted at 4 on a link 5 which may be said to constitute a second pendulum which is suspended on a pivot 6 from which it is insulated by an insulating bushing 7. The pendulum 5 swings about the pivot 6 and the pendulum 2 also swings about the pivot 6 with the pendulum 5 but is also capable of oscillation independently on the pivot 4.

The pendulum 5 carries two contacts 8, while the pendulum 2 carries two spring contacts 9 which reach upwardly and overlie the contacts 8 but are normally spaced therefrom as shown in Figure 1. That is to say, when the pendulums are hanging stationary from their respective pivots the spring contacts 9 are so adjusted that they will not

engage with the contacts 8. It will be noted moreover that the contacts 9 are insulated with respect to the pendulum 2 by insulating strips and bushings. To the pendulum 5 is electrically connected a wire 10 so that the contacts 8 are electrically connected to this wire through the pendulum 5. To the contacts 9 are connected a wire 11 and it will thus appear that when the pendulums are gravitating in raised positions, the circuit of which the wires 10 and 11 form a part will be broken at the contacts 8 and 9. It will be manifest however that if either or both the pivots 6 and 4 are quickly shifted laterally in either direction to disturb the quiescent state of the pendulums, the pendulum 5 will oscillate upon its pivot 6 while the pendulum 2 will swing about the pivot 6 and at the same time will have an independent oscillation on its pivot 4.

As soon however as this occurs, the pendulums 5 and 2 will partake of different angular relations with respect to one another than they partake of when in quiescent condition and as soon as this occurs, one of the contacts 9 will engage with one of the contacts 8 and if the pendulums swing back and forth the contacts 9 will alternately make momentary connection with the respective contacts 8 so as to alternately complete the circuit of which the wires 10 and 11 form a part.

Upon the operation of a controlling element such as we have described, the system of the present invention is based, since, manifestly, if the wires 10 and 11 are connected through a suitable source of electrical supply to an alarm and the pivot 6 mounted in fixed position on a motor vehicle, it will be apparent that so long as the motor vehicle is at rest the pendulums will maintain quiescent positions and the electrical circuit referred to will remain broken at the contacts 8 and 9. If, however, any attempt is made to start the vehicle, a sudden forward impulse of the vehicle or a letting in of the clutch will cause the pendulums to swing about their respective pivots so that the circuit including the alarm will be energized and the alarm sounded. It will be noted however that the car may be left standing either uphill or downhill or on the level without causing an alarm to be given so long as the car is left stationary since the pendulums will, when the car is brought to rest, gravitate into alinement and assume a state of rest with the contacts free from one another.

In carrying out the invention in practice I mount the pivot 6 upon any suitable support within a casing 12 preferably metallic and sufficiently strong to form a housing which cannot be readily disrupted or broken into and we include in the circuit of which the lines 10 and 11 form a part suitable mechanism for rendering the circuit operative or inoperative and for supplying current for energizing said circuit.

In the form of the invention disclosed, the system is shown as associated with the ignition circuit of the motor vehicle in which the system is installed. 13 designates the storage battery of the car connected to ground at 14 and also connected by a lead 15 to the ignition system of the car. For example to the cut out switch or directly to the distributor or otherwise in accordance with the particular car in which the device is installed. This part of the system forms no part of the present invention. The switch 16 shown in Figure 2 is the conventional ignition switch whereby the car driver may render his ignition circuit operative or inoperative and this switch is conveniently controlled by a key which the driver takes with him when he leaves the car standing with the ignition circuit locked in inoperative condition.

In accordance with the invention as shown, a wire 17 is led from the wire 15 beyond the switch 16 through an armored cable 18, shown as BX cable to the interior of the box 2 where it connects with a coil 19 of a magnet having a fixed core 20. The other end of the coil is connected by a wire 21 which passes through the conduit 18 to ground 14. So long as the ignition switch is closed and the car in operative condition, current from the storage battery 13 will serve to energize the core 20 and attract an armature 22 shown as mounted on a switch arm 23 pivoted at 24. When the switch arm 23 is raised by the magnet 20 the free end of the arm is lifted free from a contact 25 which is mounted at 26.

However, if the switch 16 is open and the magnet deenergized, the weight of the switch arm will cause it to gravitate into engagement with the contact 25 and thus connect the switch arm to ground. The switch arm 23 is connected by a wire 27 to one pole of a local battery 28, which in practice may consist of one or more dry cells. To the other pole of the battery is connected the wire 10 previously described. The wire 11 connects with the wire 29 which leads to one binding post of an audible alarm 30, either bell, whistle or other suitable device shown in the drawings as a bell. The other binding post of the alarm device is grounded at 31.

With this arrangement it will be apparent that if the car is left with the ignition switch lock in open position, any attempt to start the car by causing it to roll down hill under its own momentum or towing a car will cause the pendulums to oscillate in the manner previously described and inasmuch as the switch arm 23 is grounded, as soon as the contacts 9 touch the contacts 8, the bell 30 will ring. Since this ringing however will be but momentary, it is desirable to associate

with the system maintaining means to keep it ringing after it starts to ring and to this end, a maintaining switch 32 is shunted across the controlling pendulums being connected to the wire 10 by a wire 33 and to the wire 29 by a wire 34 terminating in a contact 35. From the wire 34 is tapped a wire 36, which leads to a magnet 37 grounded at 38. So long as the magnet 37 is deenergized, the switch arm 32 will fall free from the contact 35, but when the magnet 37 is energized, it will shift the switch arm 32 and complete the circuit from the battery 28 directly to the wire 29.

As a result of this arrangement, the following operation takes place. As soon as the pendulums start to oscillate and one of the contacts 9 touches one of the contacts 8, a circuit will be established through the bell as previously described, but simultaneously with the establishment of this circuit, the current will branch through wires 34 and 36 through the maintaining magnet 37 to ground at 38. The sooner the magnet is energized, its armature which is the maintaining switch, will be lifted thereby engaging the contact 35 so that a circuit will thereupon be set up from the battery 28 through the wires 33, maintaining switch 32, wires 34 and 29 to the bell, while a part of the current will divide and continue to pass through the magnet 37 to ground thereby keeping the maintaining switch closed. As soon as the maintaining switch is closed the controlling pendulums will be shunted so that even though the contacts 8 and 9 cease to engage one another, the bell will continue to ring notifying persons in the vicinity that the car is being tampered with or that an attempt is being made to steal the car.

It is well recognized that thieves become especially perturbed when audible alarms are sounded and such being the case the ringing of the alarm will serve to protect the car against being stolen even more than though the car were actually mechanically locked against removal. It may be here noted that should the thief attempt to sever either one or both of the wires 21 or 17, the switch arm 23 will immediately fall and will condition the alarm for operation as soon as the car is moved.

In Figure 1 of the drawings, the system is shown as associated with and in a measure controlled by the ignition circuit of the vehicle. I wish it understood however that this is for the purpose of illustration only and that instead of connecting the wires 21 and 17 into the ignition circuit, they may be made to include battery 13 and also a manually operable switch positioned in some suitable part of the car and adapted to be opened when the owner leaves the car unaccompanied.

In lieu of the arrangement shown in Figure 1, the magnets 19 and 20 and the wires 21 and 17 may be entirely omitted and the switch 23 may be positioned on the outside of the box in any suitable location and be manually operable. When the car is being run by an authorized person the switch will be manually opened but when the car is to be left standing alone the switch is closed so as to leave the system in a condition to operate automatically and give an alarm in the event of attempt at theft.

In practice, the box 12 is made strong and substantial and any attempt of thieves to open or break the box will be thwarted.

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

1. A circuit closer embodying a rigid link mounted on a relatively fixed pivot and carrying a contact intermediate its ends, a second rigid link pivoted to and extending below the lower end of the first named link and also having a contact secured intermediate the ends of said link and extended beyond the pivot of its link to engage the first-named contact, said contacts being normally separated when the links are gravitating in quiescent condition, but being adapted to engage one another and complete a circuit in which said contacts are adapted to be included when the quiescence of the rigid links is disturbed.

2. A circuit closer embodying a link pivoted at its upper end to a fixed pivot, a second link pivoted at its upper end to and extending below the lower end of the first named link, a weight associated with the lower end of the second link, and contacts mounted on both links to contact with each other between the pivots between the said links and spaced apart when the links are gravitating in quiescent condition, said contacts being adapted for engagement with one another to complete a cooperating circuit when the relative quiescent condition of the links is disturbed.

In testimony whereof we have signed the foregoing specification.

CHARLES H. KOLLING.
REINHOLD PRIETZ.