

[54] **VEHICLE ELECTRICAL LOCKING AND ALARM SYSTEM**[76] Inventor: **Thomas L. Sloger**, R. D. 2, Tippecanoe Road, Canfield, Ohio[22] Filed: **Nov. 3, 1971**[21] Appl. No.: **195,418**[52] U.S. Cl. **340/64, 307/10 AT, 200/44**[51] Int. Cl. **B60r 25/04, B60r 25/10**[58] Field of Search. **340/63, 64, 65, 276; 307/10 AT; 200/42, 43, 44, 45**[56] **References Cited****UNITED STATES PATENTS**

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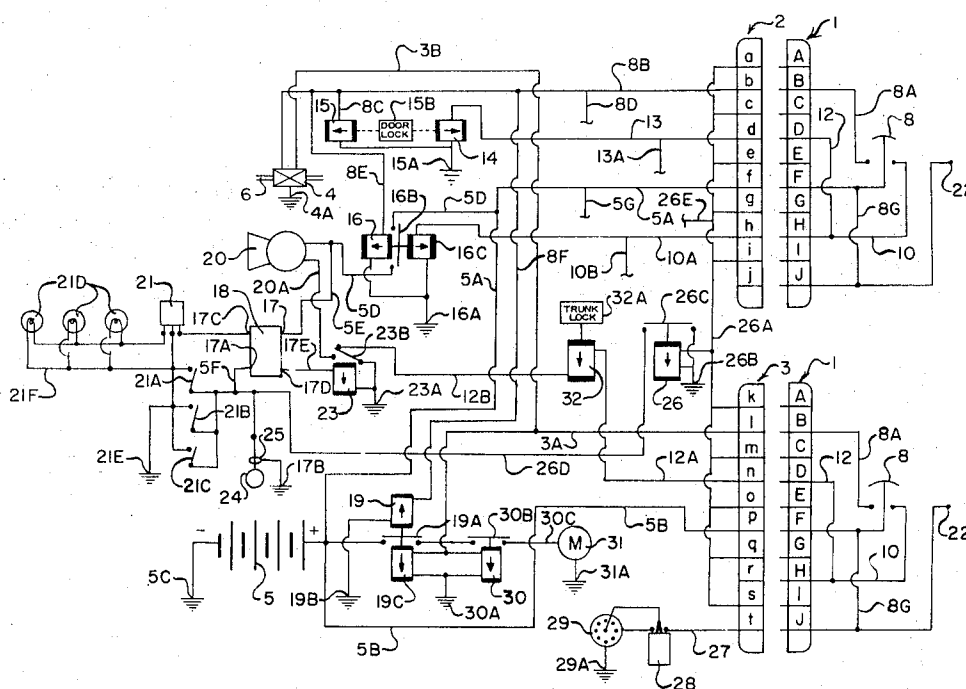
Primary Examiner—Alvin H. Waring

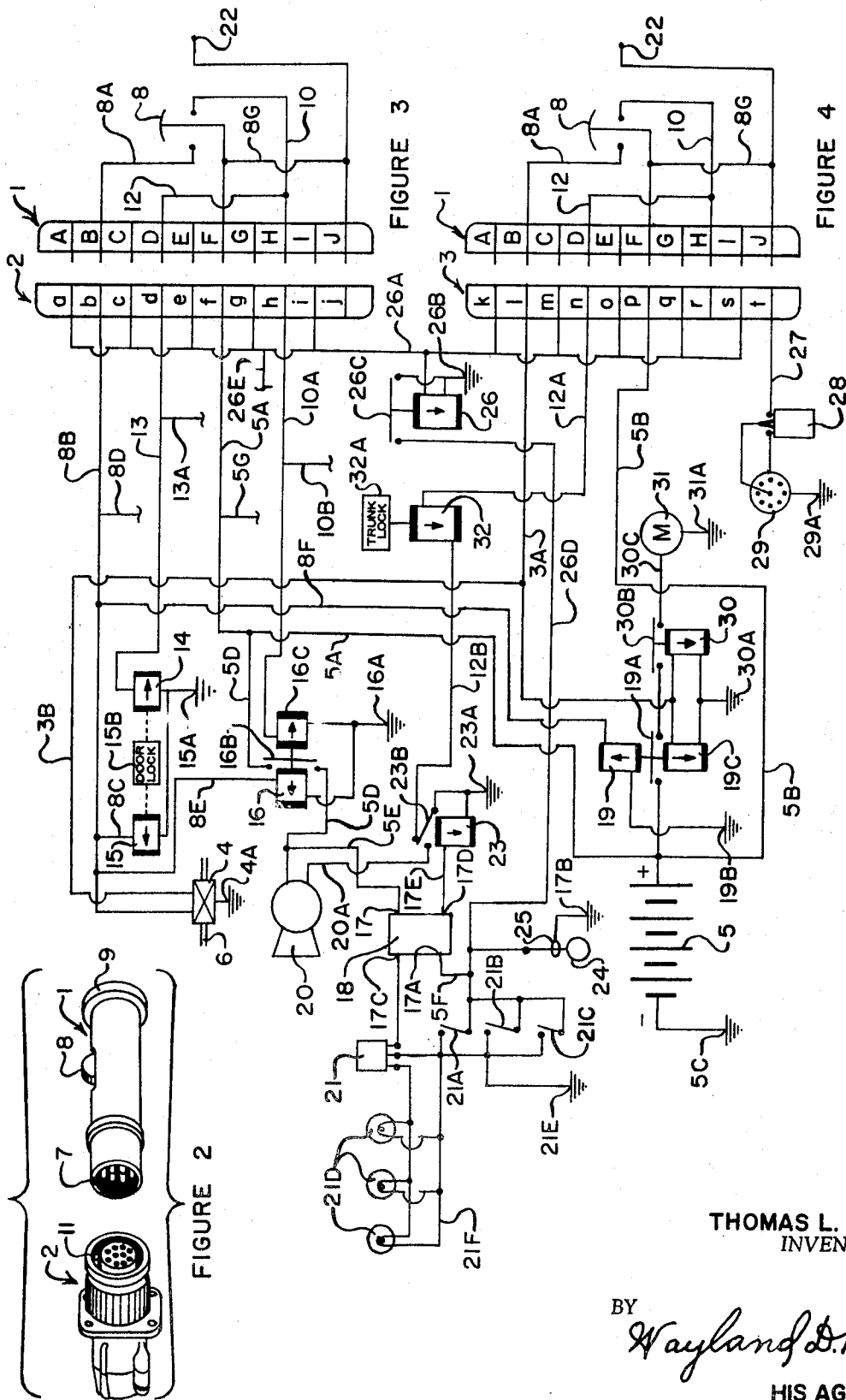
Attorney—Wayland D. Keith

[57] **ABSTRACT**

The present invention, when applied to a vehicle, or

other instrumentality, is to prevent unauthorized use of the vehicle or other device on which it is installed, and to prevent tampering with any component attached to the vehicle or device. This is accomplished by eliminating the conventional cylinder and tumbler locks and replacing them with a multiple contact plug and socket. With a special key unit, coded, matched and mated with a door and/or with an ignition unit, the owner may lock and unlock the doors and/or trunk, start and drive the vehicle, and turn off the ignition, in much the same way he would use the conventional key. There are a few changes in the location and operation of some of the components used in the present system that are already in use on the standard automobile. Further, if any other key unit or plug, or "jump wiring" is used in an attempt to unlock the doors of the car or to start the engine an alarm will be initiated to announce that the vehicle or other instrumentality has been tampered with. The present system is so constructed as to turn off all the major components, including the ignition, gasoline supply, electrical current to the various components, which system also includes setting an alarm against motion and unauthorized entry.

11 Claims, 4 Drawing Figures



THOMAS L. SLOGER
INVENTOR.

BY
Wayland D. Keith
HIS AGENT

VEHICLE ELECTRICAL LOCKING AND ALARM SYSTEM

BACKGROUND OF THE INVENTION

This invention relates to an electrically actuated locking and alarm system for locking a multiplicity of elements simultaneously, and while the invention will be described in some particularity with respect to automotive vehicles and more especially to automobiles, it is to be understood that it may be adapted for use in plants, stores, warehouses and other fields of endeavor which require guarding or the locking of a multiplicity of elements simultaneously.

The present electrical locking and alarm system is so constructed that it may have a multiplicity of stations which can be locked or set in such manner that an alarm will be sounded, if any one of the several stations is tampered with. Further it will operate to nullify effort to cause the alarm to cease, which cannot be done until the proper contacts are brought into simultaneous contact relation with a master contact element or plug, which may be minaturized.

For purposes of description, the present electrical locking and anti-theft system utilizes a multiple contact element in the form of a socket or receptacle and a complementary multiple pin type plug, which, in the present instance, is shown to be a 10 pin plug and a complementary receptacle or socket. These are known by various trade names, such as Cannon, Amphenol, Elco, Cinch-Jones and others, however, in the present instance, a Cannon type plug and socket is shown, which are preferably minaturized for convenience in carrying.

For purposes of illustration, the present invention will be described as utilized on an automotive vehicle, but the invention is not to be limited thereto. In using the present invention on an automotive vehicle, it is preferable to have one or all of the doors or the body portion adjacent thereto to have a socket or receptacle thereon which is adapted to receive a complementary multi-pin plug. For purposes of illustration, however, these may be reversed, with the plug being attached to the vehicle and the socket being the "key" for operating the system.

To this multi-contact connection on the car adjacent the door, or adjacent each door, circuit may lead to each element or facility which is to be protected, prior to the turning on of the ignition switch, and while only one multi-contact socket or receptacle has been shown, stubs of wires are shown leading therefrom to enable other sockets or multi-contact receptacles to be connected in parallel, so any door can be opened by the "key" multi-point connector, such as a Cannon plug, which is wired internally so it will close the necessary circuits to actuate the door mechanism to enable the door to be opened without setting off an alarm or performing other functions which would negate the opening of the door.

OBJECTS OF THE INVENTION

An object of this invention is to provide an electrical lock and theft deterrent which will immobilize a number of key elements and provide an alarm system which will sound or otherwise spread an alarm, upon unauthorized tampering with the system.

Another object of the invention is to provide an electrical locking and theft deterrent system which has a vast variety of combinations to be had without duplication, which makes the system practically infallible against short circuiting or jumping certain circuits without setting off an alarm and jamming the system so it cannot actuate until the precise multi-contact unit is employed to complementally engage the contacts of the system.

Still another object of the invention is to provide a circuitry which practically defies "professional" thieves trying to steal a vehicle on which the present system is utilized.

Yet another object of the invention is to provide a system which may be rewired and coded in a minimum of time so the multi-contact plug previously used will not perform the function of the newly wired and coded plug.

Still a further object of the invention is to provide a multi-contact member, such as a Cannon plug, the code of which will operate the door or doors and the ignition of an automotive vehicle without having to use a separate coded unit for each.

A final object of the invention is to provide an electrical locking and alarm system which is simple in construction, effective in operation, easy to recode, and relatively low in the cost of manufacture.

BRIEF DESCRIPTION OF THE DRAWINGS

With the foregoing objects in mind and others which will become manifest as the description proceeds, reference is to be had to the accompanying drawings, in which:

FIG. 1 is a diagrammatic view of the wiring of an electrical locking and alarm system, which, in the present instance, is shown as applied to an automotive vehicle;

FIG. 2 is a perspective view of a multi-pin plug and a complementary socket shown in disconnected relation;

FIG. 3 is a diagrammatic view of the multi-pin portion of the connector as shown in FIG. 2, in aligned relation with the schematic wiring diagram, as shown in FIG. 1, but separated therefrom;

FIG. 4 is a view identical to FIG. 3, but in aligned relation with a second complementary socket or receptacle shown in FIG. 1, but spaced therefrom.

DESCRIPTION OF THE INVENTION

With more detailed reference to the drawing, like references characters designate like parts in the several views thereof. While the electrical locking and alarm system will be described in detail for use on a vehicle and more particularly a vehicle such as an automobile, it is not to be considered as limited thereto, and while the multiple pin plug and socket connector has been referred to as a "Cannon" plug, it is to be understood that any type multiple pin plug with complementary socket multi-point connector is within the scope and intent of the invention.

The controlling units of the present system are made up of two components, a multi-pin plug and a complementary socket electrical connectors, with one of the portions, for instance the female portion, being mounted on the door or doors or on the body of the vehicle adjacent the door or doors and on the cowl of a

vehicle. In this manner the complementary portion, such as a plug, may be inserted into the socket, and if the wiring of the plug and of the socket is in mated, coded relation, it will perform a plurality of functions, which will be described in detail hereinafter.

The controlling units of the present system are made up of two portions, a multiple pin plug, which is designated generally at 1, and a complementary socket or receptacle unit, designated generally at 2, which units are of the type known as a "Cannon" plug and socket. While the representation of the plug and socket is shown to have 10 pins and 10 pin receptacles, this number may be varied according to the degree of simplicity or complexity desired. However, 10 pins, A, B, C, D, E, F, G, H, I and J in plug 1 and 10 pin receptacles, a, b, c, d, e, f, g, h, i and j in the socket 2, results in an almost infinite number of combinations, when calculated on a permutation and combination basis.

With the female portion of the receptacle unit 2 mounted on one of the doors or on the body of the vehicle adjacent one of the doors, or with a female receptacle unit 2 mounted, in the same manner, on or adjacent each of the doors, and with the circuitry of the several female receptacle units 2 connected in parallel, and coded and mated to be complementary to plug 1, the plug may be inserted into any of the receptacle units 2 to enable the circuit 13 to be closed to unlock a door (not shown) upon actuation of rocker switch 8 in one direction which will close circuits 10, 12 and 13 to actuate solenoid 14 to release the lock of a door, or through branch circuits 13A to unlock other doors. Simultaneously the circuit 10 will energize circuit 10A, 10B to actuate solenoid 16C to open switch 16B to de-energize siren 20.

The controlling units of the present system are made up of two portions 1 and 2, comprising a multi-pin socket and "Cannon" plug electrical connectors. The female portion 2 is shown in perspective in FIG. 2, however, it is shown diagrammatically as being wired into one portion of the electrical system, FIG. 1, and in FIG. 3 it is shown diagrammatically as wired into another portion of the electrical system, as shown in FIG. 1. The female socket portions 2 and 3, as shown in FIG. 1, may be duplicated for as many doors as the vehicle has, and are preferably mounted on the doors and on the cowl, respectively of the vehicle and are connected to circuits 5A and 5B respectively, which circuits are connected to a battery 5, FIG. 1. The battery 5 has a ground 5C connected thereto to enable the various circuits to be completed, as will be more fully brought out hereinafter.

The sockets 2 and 3 on the doors and cowl respectively may selectively receive the multi-pin plug 1, which sockets may be located in substantially the same position on the doors or on the body adjacent the doors and on the cowl, respectively, as the conventional tumbler locks and switches are now located. Multi-plug units 1, as shown in FIGS. 3 and 4, have identical wiring, but are shown in aligned relation with respect to the respective sockets 2 and 3, as shown in FIG. 1, to enable the circuits to be readily traced, however, in normal use, only one plug 1 will be used at one time. Another part of the multi-plug or "key" unit 1 is the three-position, on-off-on rocker switch 8 which is spring loaded to the center or "off" position. In event it

is necessary to gain entrance to the plug 1, a removable cap 9 is provided on an end thereof, which allows emergency access to the terminal 22, as shown in FIGS. 2 and 3, which enables auxiliary electricity to be connected thereto to enable the plug 1 to perform the same functions as if the battery 5 was connected thereto. This holds true whether opening a door or doors and energizing the allied circuits associated with socket 2 or operating the circuit of socket 3, which circuits are allied with the ignition circuit.

In this manner an auxiliary battery may be pressed into service for temporary use.

It is to be pointed out that the multi-pin "key" unit 1 may be selectively inserted into the sockets 2 and 3 in only one position, as the plug 1 has a slot 7 formed on a side thereof to complementally engage a rib or projection 11 in the respective sockets 2 and 3, as will best be seen in FIG. 2. As part of the combination these slots 7 and ribs or projections 11 may vary in width as well as in circumferential spacing around the periphery of the plug 1 and the diameter of the sockets 2 and 3. The location of slot 7 and rib or projection 11 is shown in the "12 o'clock position" in FIG. 2.

The number of slots 7 and of complementary ribs or projections 11 in each plug 1 and socket 2 or 3 may vary so that the plug and socket portions for one vehicle or instrumentality to be locked will be complementary. The peripheral spacing of these respective portions may also vary to obtain an almost infinite number of combinations. Furthermore, a single slot and projection may vary only minutely in circumferential spacing to bring the proper multi-pin units of the plug into register with the proper receptacle in the socket. This is in addition to the internal wiring of the circuits within the plug, therefore the possible combinations would become innumerable, therefore the particular coded and mated plug, both for wiring and for slot and projection arrangement will fit only into a complementary socket to perform the desired function of opening or closing the circuits in accordance with the action of the rocker switch 8.

Should a plug 1 with a slot or slots 7 formed therein be inserted into a socket 2 or 3 to receive the slot or slots on the complementary projections 11, another main deterrent to tampering would be the wiring of plug 1 or of sockets 2 or 3, as there are many and varied ways that the plug and sockets may be wired. It is to be understood that the manner of wiring as shown in the drawings is representative of one of many ways the plug 1 and sockets 2 and 3 may be wired, as in a socket with 10 receptacles, any wiring arrangement may be connected to the receptacles.

To operate the present locking and alarm system, the multipin plug 1 forms the key which is inserted into the door socket 2. The battery 5 supplied power to socket 2 through receptacle f therein and to pin F in key 1. The key 1 has rocker switch 8 wired thereinto, as shown in perspective in FIG. 2, and as shown diagrammatically in FIGS. 3 and 4. With the rocker switch 8, within socket 2 in accordance with the wiring shown therein, the rocker switch 8 is rocked toward socket 2 and electrical current flows from battery 5 through wire 5A, receptacle f and pin F, and through wire 8A, through pin and receptacle B and b, respectively into wire 8B. This will energize fuel shut-off valve 4, which is a two

position, solenoid actuated valve which will close conduit 6 against the flow of fuel therethrough. The fuel shut-off valve 4 is grounded, as indicated at 4A which permits the electricity passing therethrough to return to the ground 5C of battery 5, which fuel line is located between the fuel tank and the fuel pump of the vehicle, therefore the fuel to the engine is shut off.

The current flowing through wire 8B will flow through wire 8C to solenoid 15 and to ground 15A to lock the door lock 15B to simultaneously lock all doors, which locks 15B are wired in parallel, through parallel wiring arrangement 8D. While only one door lock solenoid and door lock have been shown, it is to be understood that such units may be located on or adjacent to each door of the vehicle and operated simultaneously by actuation of rocker switch 8.

Furthermore, the current flows from wire 8B to wire 8E to and through a two-position solenoid 16 and to ground 16A to close switch 16B to provide a live circuit, when the mail electrical circuit is de-activated, as will be more fully brought out hereinafter. In this manner the alarms are "set" and "released" for instant operation to sound an alarm and activate a visible signal, upon the vehicle or other instrumentality, with which the system is connected, being tampered with. Wire 5G is connected to the other sockets 2 which will be included for other doors.

A wire 5D is connected to wire 5E and leads to and through switch 16B to siren 20, and with one branch connector 5E connected to terminal 17 on timer 18 and with wire 5F connected to terminal 17A the current passes through the timer 18 to one of the grounds 17B, 21E or 26B that is made available when the vehicle or instrumentality is tampered with to form a circuit to the ground 5C of battery 5 to energize timer 18, when activated.

Electrical current from wire 8B flows through a branch wire 8F to a two-position solenoid 19 to open an off-on switch 19A, which current flows to ground 19B and returns to ground 5C of battery 5. This de-activates the normal electrical system of the vehicle or other instrumentality, as emergency circuits are provided for theft alarms and the like. With this operation electrical power to all the automotive electrical parts, except the door socket 2 and ignition socket 3 and emergency alarm solenoid switch 16, is turned off. With the doors now locked and with the fuel and electrical power turned off and the alarm set in position for activation, the operator may now leave the vehicle in a protected state.

If the automotive vehicle or other instrumentality if tampered with, the siren 20 will sound and alert persons in the area, who should be prompted to notify authorities. The alarm may be activated in three ways. First, by opening any door, the hood or the trunk of the vehicle, while in "locked" position, whereupon, micro-switches 21A, 21B, and 21C, which are spring loaded, will be moved from open to closed position, as these are held open or in the off position by the closed door, hood or trunk, and while the term micro switch has been used, it is to be understood that any type spring actuated, normally closed switch may be used. With either of the switches 21A, 21B or 21C closed, current will be directed from the terminal 17A of timer 18 to ground 23E, a flasher mechanism 21 and therethrough

to ground 5C and to battery 5. This action starts the timer on a cycle. During the cycle, power flows from battery 5, through circuit 5A, 5D and through switch 16B, wires 5H, 5E and to terminals 17, 17C and 17D for a pre-set period of time, for instance, 1 minute. Power then flows to ground 21E to actuate signal lights 21D, in circuit 21F, and to simultaneously supply current from terminal 17D to sound signal relay 23 and to ground 23A to complete a circuit, which will close switch 23B, which will ground wire 20A of siren 20 so as to complete a circuit to the battery ground 5C.

When switch 23B is closed, current is directed from battery 5 through wire 5A, through wire 5D and switch 16B to the siren 20 and the timer 18 simultaneously. The closing of switch 23B grounds the siren 20 to cause the alarm to sound, when the timer completes its cycle, the switch 23B will return to open position, as shown in FIG. 1, and the alarm signal will cease. The alarm may also be silenced and the lights turned off by inserting the proper key 3 and rocking the rocker switch 8 away from the door socket 1 to de-energize the solenoid 16 to open switch 16B. With the solenoid switch 16B open, the alarm sounding switch 23B, which is spring loaded, is returned to the position as shown in FIG. 1. A solenoid 16C is within circuit 10 and 10A, so when the circuit is closed by switch 8, the solenoid 16C will be energized to move switch 16B to open position.

A second method which initiates an alarm or signal is by grounding the terminal 17A when the motion detector switch 24 swings to contact a grounded ring 25 which causes a circuit to timer to pass from the battery 5 through wires 5A and 5D, closed switch 16B to the terminal 17 of timer 18 to close a circuit through the timer 18. The motion detector switch 24 is a pendulum type switch and will be actuated either by tilting the vehicle or by pushing or pulling the vehicle, therefore, all of alarm signals heretofore mentioned will be activated.

The third manner in which the alarm signals are set off is when the terminal 17A becomes grounded through the action of a tamper detection solenoid 26, which solenoid 26 is connected to a wire 26A which, in turn, is connected to wires leading to receptacles a, c, e, g, and i of socket 2 and receptacles k, m, o, q, and s of socket 3. A wire 26E is connected to wire 26A and leads to another door socket 2 to perform the same function as pointed out for wire 26A. If any of these receptacles or wires leading therefrom are connected to a "hot" wire, the solenoid 26, which is grounded as indicated at 26B, will close switch 26C, which will cause electrical current to flow from wire or conductor 26A, through switch 26C to wire or conductor 26D to the terminal 17A of the timer 18, which timer is internally wired so as to direct current to the alarm signals in the same manner as herein before set out. The timer will be on for specified intervals, as heretofore set out.

As pointed out above, the key 1 is a multi-pin plug which fits within a multi-receptacle socket 2 or 3, and in the present instance, is a 10 pin plug and a 10 receptacle socket known as the Cannon plug and socket. As pointed out above, five of these pins in each socket are connected to a wire 26A which energizes the solenoid 26, which is grounded at 26B, to close switch 26C. Therefore, an attempt to short circuit any combination of pins and receptacles will result in setting off an

alarm. If the short circuit is not immediately rectified, the alarm will continue intermittantly until the proper coded plug or key 1 is fitted into the proper socket.

When the vehicle is to be used, the operator must first insert the multi-pin key unit 1 into the door socket 2, then the rocker switch 8 is rocked away from the socket 2. This action closes a circuit from battery 5 through wire 5A to receptacle *f*, pin F and through the rocker switch 8 into wire 10, thence through wire 12, and simultaneously through pin D and receptacle *d*, through wire 13 to solenoid 14 and to ground, thereby unlocking the door. At the same time the current passes through pin H into receptacle *h* and into wire 10A to solenoid 16B to ground, which will open switch 16B to de-energize the alarm system and the timer 18. With the alarm turned off, the doors may be opened.

The operator then removes the key 1 from the socket 2 and places the key 1 in the socket 3, which will be referred to as the ignition socket. Plugging the key 1 into the socket 3 closes a circuit from battery 5 through wire 5B, receptacle *p*, pin F, through wire 8G, through pin J and through receptacle *t*, through ignition wire 27 to energize coil 28 which supplied current to distributor 29, which distributor is grounded at 29A, therefore, so long as the key 1 is in ignition socket 3, the ignition is turned on. The switch 8 is then rocked toward socket 3 and the circuit is closed to direct current from pin 10F to switch 8 into wire 8A and through pin B, receptacle *l* into wire 3A, which leads to solenoids 19C and 30 and to ground 30A, which will close switches 19A and 30 which will direct current from the battery 5, through switches 19A and 30B to a wire or conductor cable 30C to energize starter motor 31 which motor is grounded as indicated at 31A. Simultaneously, current is directed from wire 3A into wire 3B to electrically operated solenoid valve 4 and to ground 4A, which will open the valve and the fuel line 6. The motor of the vehicle is rotated by the starter until it starts, whereupon, the operator releases rocker switch 8, which is spring loaded, to return to the center or "off" position and the vehicle may be driven in the normal manner.

When the operator wished to turn the engine of the vehicle off, he must physically remove the multi-pin key 1 from the ignition socket 3, thus breaking the current to the coil 28 and distributor 29. Since many automobiles have locks with which switches are associated, have exposed wires which are readily accessible, it is easy to wire around the lock switch, as usually only one factor has to be overcome, after the thief gains access into the car, to enable the car to be started. However, when a multiplicity of factors are disrupted and have to be overcome, as for instance the fuel supply is cut off, the starter motor circuit is disrupted, the ignition circuit immobilized, as well as various other hazards being presented to the thief trying to start the car, such as setting off sound or light signals, or both, makes a car, having the present system installed thereon an an undesirable risk.

In order to open the trunk, the operator must first insert key 1, FIG. 4, into ignition socket 3, whereupon, the switch 8 is rocket away from the socket 3, which closes a circuit, thereby causing the current to flow from battery 5, through wire 5B to receptacle *p*, pin F and with the switch 8 closed, current will flow through wires 10 and 12 to pin D and through receptacle *n*

thence through wire 12A to solenoid 32, through wire 12B and through relay switch 23B to ground 23A, which actuates solenoid 32 to unlock trunk lock 32A. The solenoid 32 is of the character that, when the trunk is closed, it will automatically lock, as by a spring latching arrangement.

When the trunk is unlocked, the operator has gained access to the battery 5 and the the various component parts that go to make up the operating mechanism for the locking and alarm system, as well as the timers and detectors, but the difficulty in gaining access to the system without the proper key, makes the vehicle less accessible to a potential thief.

In event of a dead or weak battery, access to the trunk is made possible by emergency terminal 22, as has been brought out above, wherein the conductor is connected to terminal 22 and to the positive side of battery 5, and the negative side of the battery is connected to a ground element on the vehicle. The key 1, FIG. 3, may be inserted in the door socket 2 and the door opened, then the key 1 may be moved into the position as shown in FIG. 4, and inserted into socket 3 to open the trunk, in the manner herein before set out, thus allowing access to the battery.

Although conductors connected with various instrumentalities have been referred to as wires, it is to be understood that these electrical conductors may be wires, bars, printed circuits or the like.

I claim:

1. An electrical locking and alarm system, which system comprises;

a. a source of electrical current,

b. a first electrical contact element and a second electrical contact element, each which element has a plurality of electrical contacts thereon, which contacts are complementary when said elements are mated,

1. a plurality of electrical conductors connected with certain of said contacts on said first electrical contact element, one of which conductors is connected with said source of electrical current,

2. said first electrical contact element and said second electrical contact element adapted to be detachably secured together, when in one position, so said complementary contacts will be in electrical conducting relation,

c. a plurality of electrical conductors connected to certain of said contacts of said second electrical contact element,

1. certain of said conductors interconnecting certain of said contacts on said second electrical contact element,

d. a switch on said second electrical contact element to connect certain of said electrical conductors thereon with other of said electrical conductors leading to said contacts thereon in electrical connecting relation, when said switch in in one position,

1. one of said electrical conductors leading to said switch being connected with the contact which is connected with the source of electrical current,

e. an electrically actuated lock,

1. one of said electrical conductors leading from a contact of said second electrical contact ele-

- ment to an electrically operated instrumentality to actuate said lock,
- f. an electrically actuated alarm,
1. an electrical conductor leading from one of said electrical contacts of said second electrical contact element to an electric instrumentality to actuate a switch connected with said source of electrical current to form an alarm circuit, and
 2. at least one switch within said electrical alarm circuit to initiate the actuation of the alarm upon closing said switch.
2. An electrical locking and alarm system as defined in claim 2; wherein
- a. certain of said contacts on said first electrical contact element are connected to a common conductor leading to said switch connected to said electrical alarm circuit to initiate an alarm, when electrical current is directed to one of said contacts,
3. An electrical locking and alarm system as defined in claim 1; wherein
- a. said first electrical contact elements and said second electrical contact element are each round,
 1. a projection within the arcuate distance therearound of one of said electrical contact elements, and
 2. the second of said electrical contact elements having a recess formed therein to complementally receive said projection within the arcuate distance therearound of the other of said elements to align said contacts in proper electrical conducting relation.
4. An electrical locking and alarm system as defined in claim 1; wherein
- a. said switch to initiate the actuation of the alarm is a free swinging pendulum forming one portion of a circuit and the contact member in close proximity thereto forming another portion of the circuit upon movement of said swinging pendulum into contact with said other portion of the circuit to close said circuit to initiate the actuation of said alarm.
5. An electrical locking and alarm system as defined in claim 1; wherein
- a. a timer is within said electrical alarm circuit, and
 - b. a plurality of switch elements, which, if closed, will initiate the alarm circuit for predetermined intervals.
6. An electrical locking and alarm system as defined in claim 5; wherein
- a. at least one light is connected within said circuit with said timer, and
 - b. an electrically actuated flasher element is connected within said circuit which includes said light to cause said light to flash intermittently for predetermined periods.
7. An electrical locking and alarm system, as defined in claim 1; wherein
- a. said electrical locking and alarm system is applied to an automotive vehicle, which vehicle has a fuel conduit, an electrically actuated ignition system and a starting motor,
 - b. a third electrical contact element, which third electrical contact element has a plurality of electrical

- cal contacts thereon,
1. said plurality of electrical contacts of said third electrical contact element being complementary with said contacts of said second electrical contact element, when said third and said first electrical contact elements are mated,
 2. a plurality of electrical conductors connected with certain of said contacts of said third electrical contact element, one of which conductors is connected with said source of electrical current,
 3. said third electrical contact element and said second electrical contact element adapted to be detachably, secured together, when in one position, so said complementary contacts will be in electrical conduction relation,
 4. one of said conductors leads from said third electrical contact element to the ignition system,
 5. said first electrical contact element having interengaging contacts which close a circuit from said source of electrical current to said electrically actuated ignition system, when said third and said second electrical contact elements are mated,
 - c. said switch in said second electrical contact element is adapted to close a circuit from said source of electrical current to the starting motor, when said switch is in one position.
8. An electrical locking and alarm system as defined in claim 7; wherein
- a. a solenoid actuated valve is within the fuel conduit on the vehicle,
 1. two circuits lead from said solenoid actuated valve, one of said circuits being connected with said first and said second electrical contact elements, so, upon actuation of said switch on said second electrical contact element into one position one of said circuits will be closed to actuate said solenoid valve to close said fuel conduit,
 2. said third electrical contact element having a circuit leading thereto from said solenoid actuated valve,
 3. said second electrical contact element adapted to be mated with said third electrical contact element in contact relation,
 4. said switch on said second electrical contact element adapted to be moved in one direction to close a circuit through said solenoid actuated valve to open said valve for fuel to flow therethrough and through the fuel conduit.
9. An electrical locking and alarm system as defined in claim 1; wherein
- a. said switch, when moved to another position, will close a circuit to a second electrical instrumentality to actuate said lock to unlock said lock.
10. An electrical locking and alarm system as defined in claim 1; wherein
- a. said switch, when moved to said one position, will lock said lock.
11. An electrical locking and alarm system as defined in claim 1; wherein
- a. said switch, when moved to said position, will close said alarm circuit.

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