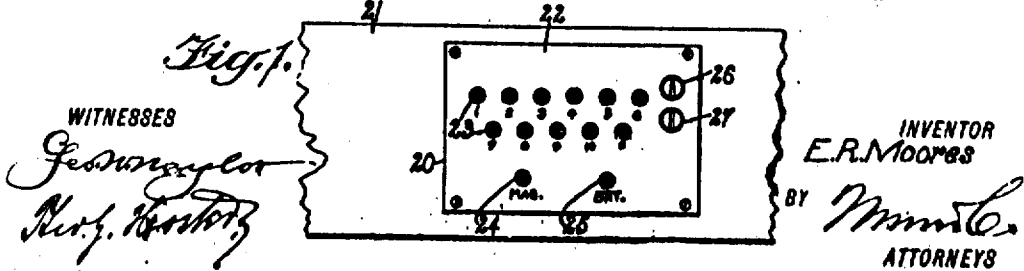
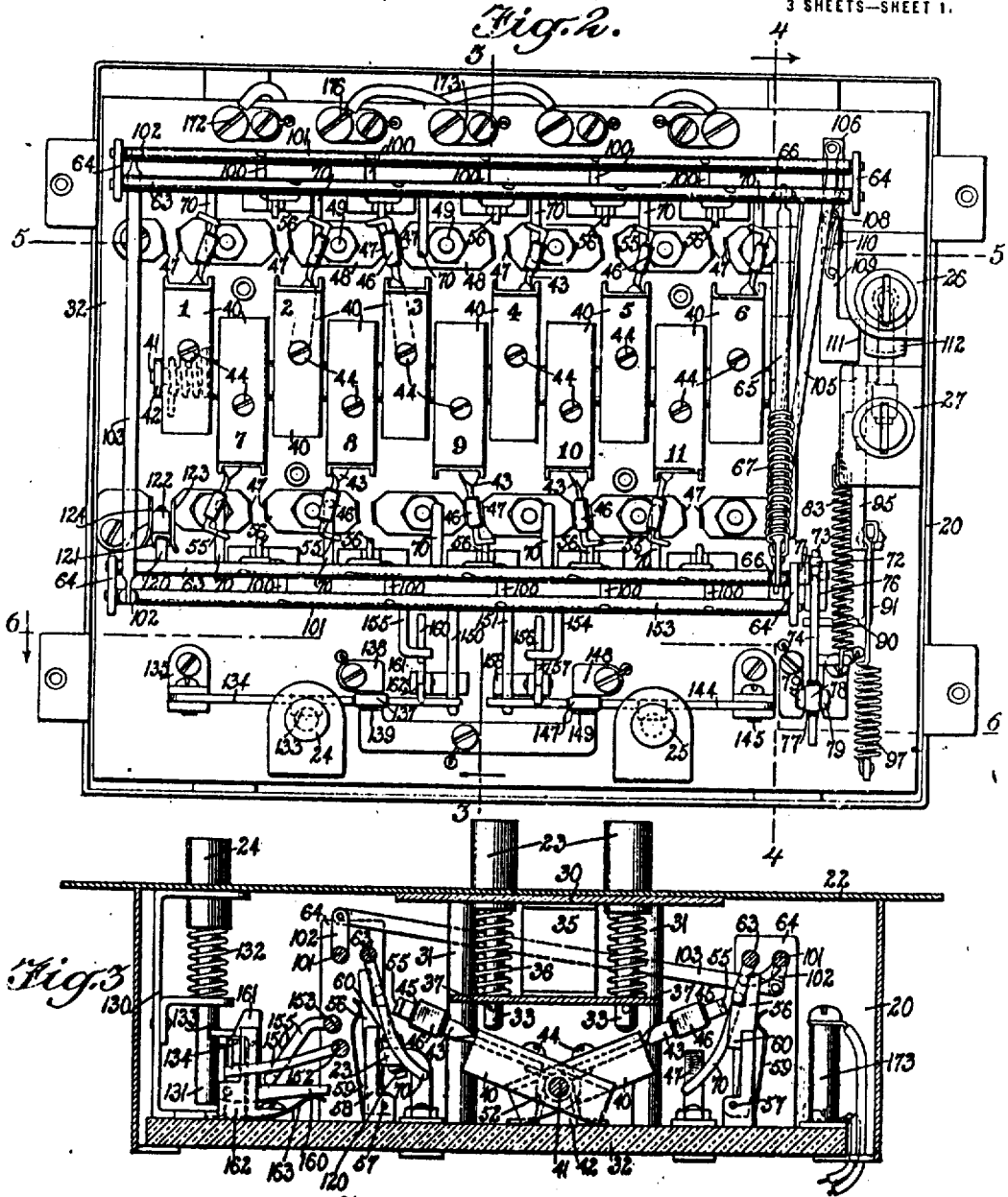


E. R. MOORES.
SAFETY LOCKING DEVICE FOR VEHICLES.
APPLICATION FILED JULY 25, 1917.

1,293,510.

Patented Feb. 4, 1919

3 SHEETS—SHEET 1.



E. R. MOORES.
SAFETY LOCKING DEVICE FOR VEHICLES.
APPLICATION FILED JULY 25, 1917.

1,293,510.

Patented Feb. 4, 1919.
3 SHEETS—SHEET 2.

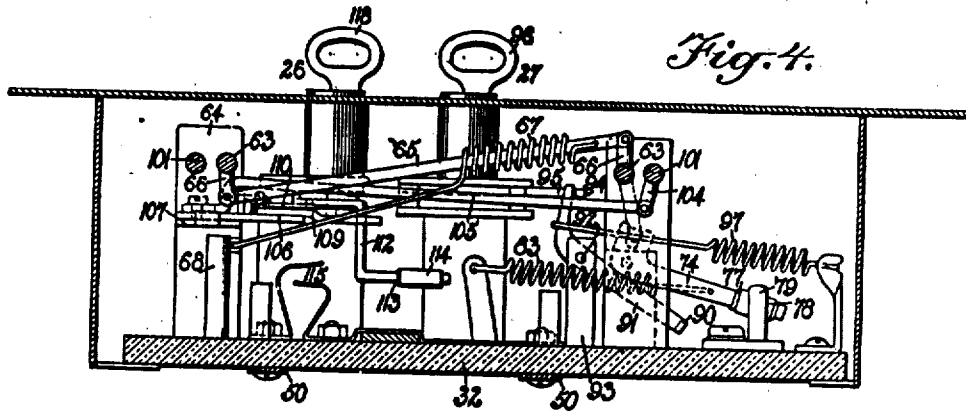


Fig. 4.

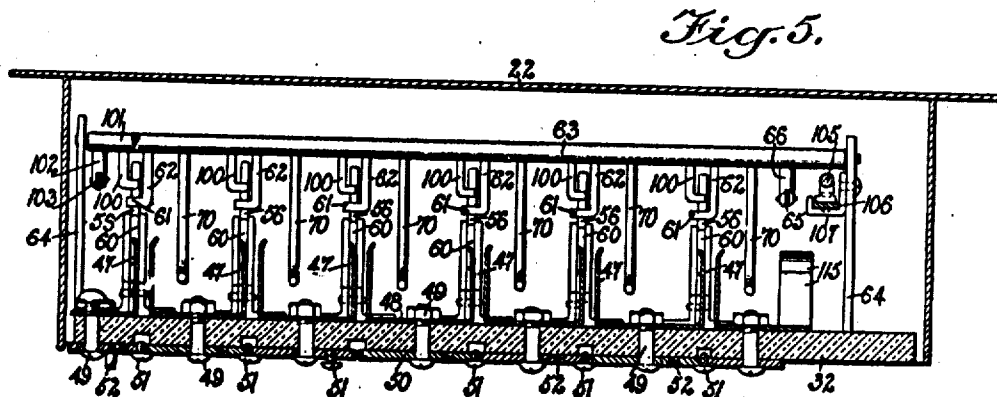
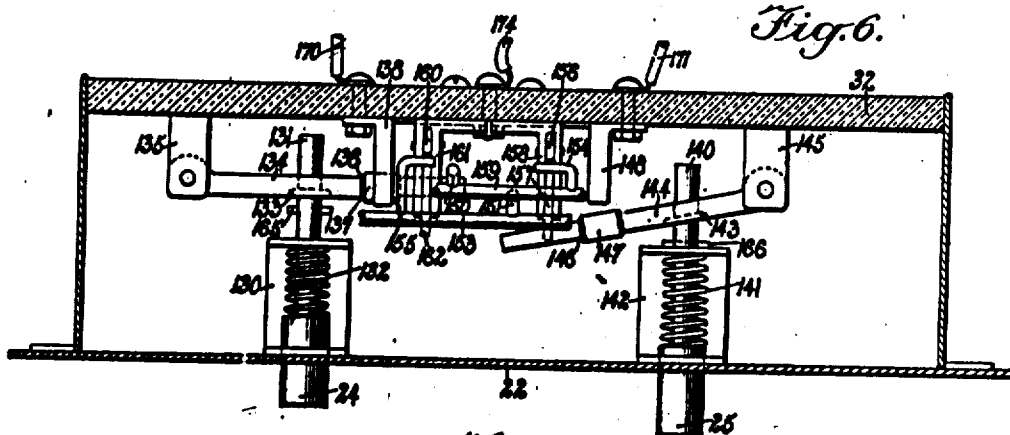


Fig. 5.



1,293,510.

3 SHEETS—SHEET 3.

Fig. 8.

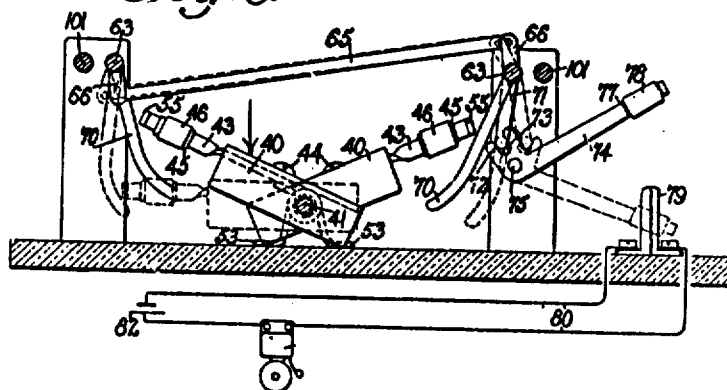


Fig. 9

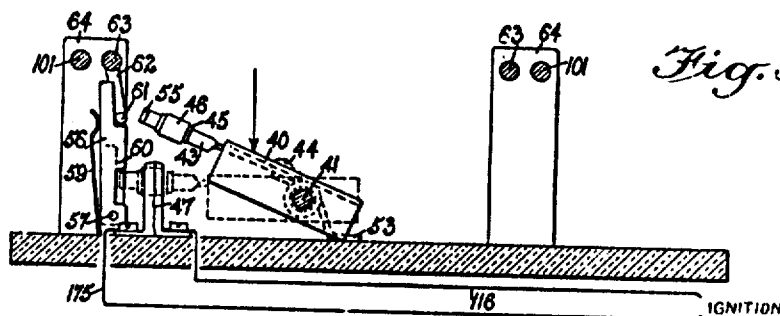
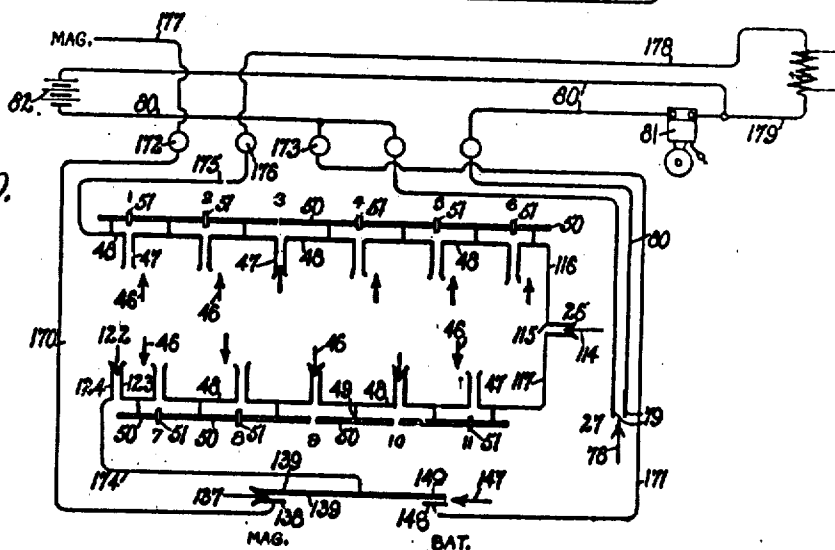


Fig. 10.



WITNESSES

James
Ruf. Porter

INVENTOR
E. R. Moores

BY *M. L.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

EDWARD R. MOORES, OF ALBANY, NEW YORK.

SAFETY LOCKING DEVICE FOR VEHICLES.

1,293,510.

Specification of Letters Patent.

Patented Feb. 4, 1919.

Application filed July 25, 1917. Serial No. 132,756.

To all whom it may concern:

Be it known that I, EDWARD R. MOORES, a citizen of the United States, and a resident of Albany, in the county of Albany and State of New York, have invented a new and Improved Safety Locking Device for Vehicles, of which the following is a full, clear, and exact description.

The invention relates to automobiles, auto-trucks, aeroplanes and similar vehicles using internal combustion engines as the motive power.

The object of the invention is to provide a new and improved safety locking device for such vehicles arranged to prevent an unauthorized person from starting and running the motor. Another object is to permit of conveniently applying the locking device to vehicles now in use without materially altering the construction thereof. Another object is to sound an alarm whenever an unauthorized person tampers with the safety locking device.

In order to accomplish the desired result, use is made of an ignition circuit, an alarm circuit and a series of button controlled switches, sundry selected switches being in operative relation with the said ignition circuit and the remaining switches being in operative relation with mechanism controlling an alarm switch in the alarm circuit to close the latter and sound an alarm whenever such alarm switch is moved into active position by an unauthorized person. Use is also made of locking means to lock the actuated alarm switch automatically in active position, to continue sounding of the alarm on release of an actuated switch, and a key controlled mechanism connected with the alarm switch to return the latter to normal open or inactive position.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a face view of the locking device attached to the working board of the vehicle to be within convenient reach of the driver of the vehicle;

Fig. 2 is an enlarged front elevation of the locking device with the front plate and switch buttons removed;

Fig. 3 is a cross section of the same on the line 3—3 of Fig. 2;

Fig. 4 is a similar view of the same on

the line 4—4 of Fig. 2, and showing a wrong button pressed and the alarm circuit closed to sound alarms;

Fig. 5 is an inverted plan view of the same on the line 5—5 of Fig. 2 with the binding posts omitted;

Fig. 6 is a similar view of the same on the line 6—6 of Fig. 2 and showing the magneto switch in active position and the battery switch in inactive position;

Fig. 7 is a rear face view of a portion of the back plate and showing more particularly a part of the means for changing the combination;

Fig. 8 is a fragmentary cross section of the locking device and showing more particularly the position of the parts when one of the alarm buttons of the combination is pressed by an unauthorized person;

Fig. 9 is a fragmentary cross section of the locking device, showing more particularly one of the selected button switches of the combination in active position; and

Fig. 10 is a diagrammatic view of the locking device as applied to control the ignition circuit of the internal combustion engine.

The safety locking device is mounted in a suitable casing 20 attached to the working board 21 of the vehicle to be within convenient reach of the driver in charge of the vehicle. The casing 20 is provided with a front plate 22 through which project switch buttons 23, preferably arranged in two rows and numbered consecutively from 1 to 11, as plainly shown in Fig. 1. A magneto switch button 24 and a battery switch button 25 project from the face of the front plate 22 so that any one of the buttons 23, 24 or 25 can be readily pressed by the driver in charge for the purpose hereinafter more fully explained. Two key controlled mechanisms 26 and 27 are mounted in the casing and having their keyhole portions extending to the face of the plate 22 to permit convenient insertion of the proper keys for actuating the said locking mechanisms 26 and 27 by the driver of the vehicle, as hereinafter more fully explained.

The buttons 23 are made of an insulating material and are mounted to slide in a plate 30 extending under the face plate 22 and attached to posts 31 fastened to the casing back plate 32 of an insulating material. The buttons 23 are provided with shanks 33 mounted to slide in a plate 34 attached by

brackets 33 to the plate 30, and on each shank 33 is coiled a spring 36 resting with its rear end on the plate 34 and pressing with its forward end on the corresponding button 23 to normally hold the latter in projected forward position on the face plate 22. The forward movement of each button is limited by a stop pin 37 attached to the shank 33 and abutting against the rear face of the plate 34 (see Fig. 3). The inner ends of the shanks 33 of the buttons 23 are adapted to engage switch levers 40 mounted to swing on a rod 41 held in brackets 42 attached to the back plate 32. The switch levers 40 for the two rows of buttons 23 are extended in opposite directions, as plainly indicated in the drawings, and each switch lever 40 is provided with a sidewise adjustable member 43 fastened in place by a screw 44. On loosening a screw 44 the corresponding member 43 may be swung sidewise into either of two positions (see Fig. 2). Thus the switch levers 40 controlled by the buttons 23 marked 3, 9 and 10 form the combination and have their members 43 set in one direction for operative relation with the ignition circuit while the remaining switch levers 40 are not in the combination and have their members 43 set in second position in operative relation with the alarm circuit. Each switch member 43 is provided with an insulation 45 on which is mounted a contact 46. The contacts 46 of the combination switch levers set in operative relation with the ignition circuit are adapted to pass between a pair of spring tongues 47 of spaced contact plates 48 secured by bolts or other fastening means 49 to the back plate 32. Each bolt 49 also engages and fastens a metallic plate 50 onto the rear face of the back plate 32 (see Fig. 5), and adjacent plates 50 are spaced apart and those not in the combination are connected with each other by removable screws 51 screwed in the opposite threaded edges of the corresponding adjacent plates. Thus the screws 51 for the contact plates 48, controlled by the switch buttons 3, 9 and 10 which form the combination, are removed while the other screws 51 are in place. Each removed screw 51 is screwed into a tapered aperture 52 formed in the corresponding plate 50 to prevent such screw from becoming lost and to be readily made use of when it is desired to change the combination.

Each of the switch levers 40 is normally held in inactive forward position by the action of a spring 53 coiled on the rod 41 and resting with one end on the back plate 32 and bearing with its other end in a forward direction on the corresponding lever 40. The free end of each adjustable switch member 43 is provided with an angular arm 55, and the arms 55 of the set combination switches are adapted to engage a catch or

locking lever 56 fulcrumed at 57 on a bracket 58 attached to the back plate 32. The locking catch 56 is pressed on by a spring 59 to normally project the catch into the path of the corresponding angular arm 55. When a combination switch lever 40 is swung rearward on pressing the corresponding buttons marked 3, 9 and 10 then the angular arm 55 engages the locking catch 56 and imparts a swinging motion to the same until the arm 55 snaps under a shoulder 60 formed on the locking catch 56 to lock the switch lever 40 in active circuit closing position. The free end of each locking catch 56 is adapted to be engaged by a pin 61 projecting sidewise from an arm 62 secured on a shaft 63 journaled in suitable bearings 64 attached to the back plate 32. By having two rows of buttons and corresponding switch levers two shafts 63 are provided but these shafts are connected with each other and rock in unison by a connecting link 65 pivotally connected with arms 66 on the said shafts 63 (see Figs. 2 and 4). A spring 67 is connected at one end with the link 65 and at the other end to a post 68 attached to the back plate 32 to normally hold the shafts 63 in normal inactive position.

From each of the shafts 63 depend cam arms 70 projecting into the path of the arms 55 of the switch levers 40 not in the combination at the time. Thus when any one of the buttons 23 not in the combination is pressed a swinging movement is given to the corresponding switch lever 40 which by the arm 55 engages the cam arm 70 and imparts a swinging motion thereto whereby both shafts 63 are rocked and the locking catches 56 are given a swinging motion against the tension of their springs 59 to release any of the arms 55 of the switch levers that may have been in set position at the time. One end of one of the shafts 63 is provided with a depending crank arm 71 (see Figs. 2 and 8) having its wrist pin 72 engaging a fork 73 on the heel of an alarm switch lever 74 fulcrumed at 75 on a bracket 76 attached to the back plate 32. The switch lever 74 is provided near its free ends with an insulation 77 on which is mounted a contact 78 adapted to pass between two spring contacts 79 connected with the circuit wires 80 connected with an alarm 81 and with a local battery 82. Thus when one of the arms 70 is given a swinging motion and the shafts 63 are rocked then the crank arm 71 imparts a swinging motion to the switch lever 74 whereby the contact 78 thereof engages the contacts 79 (see Fig. 4) thus closing the alarm circuit 80 to sound the alarm 81. Thus when an unauthorized person presses any one of the buttons not in the combination then an alarm is sounded. A spring 83 is connected with the switch lever 74 to normally hold the latter in the forward position

shown in full lines in Fig. 8; and to hold the same when in rearmost position at the time the contact 78 engages the contact 79, as shown in Fig. 4 and in dotted lines in Fig. 8. The switch lever 74 is adapted to be engaged by the angular end 90 of a bell crank lever 91 fulcrumed at 92 on a bracket 93 attached to the back plate 82. The bell crank lever 91 is engaged by an angular arm 94 formed on the outer end of a bolt 95 controlled by the key controlled mechanism 27. Now when the alarm is ringing, the contacts 78 and 79 are in engagement with each other, as previously explained, and the user of the vehicle now inserts the key 96 into the key controlled mechanism 27 and turns the said key so that the bolt 95 is actuated and imparts a swinging motion to the bell crank lever 91 which latter with its arm 90 engages the switch lever 74 and swings the same forward to disengage the contact 78 from the contact 79 and thus stop the sounding of the alarm 81. A spring 97 is connected with the bell crank lever 91 to normally hold the same in the inactive position shown in Fig. 4 and immediately to return the same to its position on the user releasing the key 96. It is understood that the pull exerted by the spring 97 on the bell crank lever 91 returns the bolt 95 to normal position after the user has released or withdrawn the key 96.

The locking catches 56 are also adapted to be engaged at their free ends by angular arms 100 attached to rock shafts 101 journaled in the bearings 64. The rock shafts 101 are provided with arms 102 connected with each other by a link 103 to rock the said shafts 101 in unison when one of the shafts is rocked. One of the rock shafts 101 (see Fig. 4) is provided with an arm 104 connected by a link 105 with a slide 106 mounted to slide in a suitable guideway 107 attached to the opposite bearing 64. On the slide 106 is pivoted at 108 a lever 109 pressed on by a spring 110 and provided at its free end with an offset 111 adapted to be engaged by a main ignition switch lever 112 connected with and forming part of the key controlled mechanism 26. The main ignition switch lever 112 is provided with an insulation 113 (see Fig. 4) on which is mounted a contact 114 adapted to pass between main switch contacts 115 connected with the wires 116 and 117 of the ignition circuit (see Fig. 9). The lever 109 is normally in the position shown in Fig. 2, and when the driver inserts the key 118 in the key controlled mechanism 26 and turns the key 118 then the switch lever 112 engages the offset 111 whereby a sidewise swinging motion is given to the lever 109 until the switch lever 112 has passed the offset 111, at which time the spring 110 returns the lever 109 to its normal position thus engag-

ing with its offset the switch lever 112. During the turning of the key 118 the contact 114 is swung into engagement with the switch contacts 115 thus connecting the wires 116 and 117 of the ignition circuit with each other.

The driver before turning the key 118 presses the buttons of the combination 3, 9, and 10 so that the portions of the ignition circuit controlled by the combination are closed, and when the driver turns the key, the ignition circuit is completely closed and the vehicle may be started. When the driver on leaving the car turns the key 118 in the reverse direction then the contact 114 moves out of engagement with the contacts 115 to break the ignition circuit at this point, and the switch lever 112 also exerts a pull on the offset 111 thus causing the lever 109 to impart a sliding movement to the slide 106 whereby the link 105 imparts a rocking motion to the corresponding shaft 101 whereby by both shafts 101 are rocked and the arms 100 impart a swinging motion to the locking catches 56 to release all the arms 55 that may have been in locked position. When this takes place the switch levers 40 return to their normal inactive position by the action of their springs 52 and the ignition circuit is further broken in three places.

One of the shafts 63 (see Fig. 2) is provided with a switch arm 120 provided with an insulation 121 on which is mounted a contact 122 adapted to pass between two spring contacts 123, 124, of which the contact 123 forms part of the adjacent contact 47. If all the buttons 23 are simultaneously pressed by an unauthorized person it causes the contact 122 to swing out of engagement with the contacts 123 and 124 thus breaking the ignition circuit also causing the contact 78 to swing into engagement with the contact 79 and causing the alarm to sound.

The magneto and battery buttons 24 and 25 are arranged to control one the other; that is, when one is pressed the other is released and vice versa. For this purpose the following arrangement is made, special reference being had to Figs. 2, 3 and 6: The button 24 is mounted to slide in a bracket 130 attached to the front plate 22, and the button is provided with a reduced portion 131 on which is coiled a spring 132 resting with one end on the bracket 130 and pressing with its other end on the button 24 to hold the latter normally in forward position. On the reduced portion 131 is formed a slot 133 adapted to engage a switch lever 134 mounted to swing on a bracket 135 attached to the back plate 32. On the lever 134 is secured an insulation 136 supporting a contact 137 adapted to pass between two spring contacts 138 and 139 held on the back plate 32. The battery button 25 is provided with a reduced portion 140 on which

is coiled a spring 141 resting with one end on the bracket 142 in which the button and its reduced portion 140 are mounted to slide. The reduced portion is provided with a slot 143 engaging a switch lever 144 fulcrumed on a bracket 145 attached to the back plate 32. On the switch lever 144 is secured an insulation 146 on which is mounted a contact 147 adapted to engage two spring contacts 148 and 149, of which the contact 149 is connected with the contact 139. The free ends of the switch levers 134 and 144 are adapted to engage arms 150 and 151 projecting from two shafts 152 and 153 journaled in the brackets 64, and the said shafts 152 and 153 are provided with releasing arms 154 and 155 of which the arm 154 is adapted to engage the spring-pressed tail 156 of a catch 157 mounted to swing on a bracket 158 attached to the back plate 32. The catch 157 is adapted to engage and lock the switch lever 144 in position at the time the contact 147 engages both contacts 148 and 149. The arm 155 on the shaft 153 is adapted to engage the spring-pressed tail 160 of a catch 161 fulcrumed on a bracket 162 attached to the back plate 32. The spring catch 161 is adapted to engage the switch lever 134 controlled by the magneto button 24 to lock the said switch lever 134 in place at the time its contact 137 engages the contacts 138 and 139. The tails 156 and 160 are each pressed on by a spring 163 (see Fig. 3) to hold the corresponding catch 157 or 161 in engagement with their corresponding switch lever 144 or 134. It will be noticed that when the button 24 is pressed the contact 137 swings into engagement with the contacts 138 and 139 and at the same time the free end of the lever 134 engages the arm 150 and imparts a swinging motion to the same thereby rocking the shaft 152. The rocking of the shaft 152 causes its arm 154 to engage and press the tail 156 of the catch 157 whereby the latter moves out of engagement with the switch lever 144 thus releasing the latter. The action of the spring 141 on the button 25 and its reduced portion 140 now causes the switch lever 144 to swing forward whereby the contact 147 moves out of engagement with the contacts 148 and 149. In a similar manner when the button 25 is pressed the contact 147 moves into engagement with the contacts 148 and 149 and at the same time the switch lever 134 is released and the spring 132 returns the switch lever 134 and the button 24 to normal inactive position. The forward movements of the buttons 24 and 25 are limited by stop pins 165 and 166 adapted to abut against the brackets 180 and 142.

The contacts 138 and 148 are connected by wires 170 and 171 with binding posts 172 and 173, and the connected contacts 139

and 149 are connected by a wire 174 with one of the end contact plates 48, as plainly shown in Fig. 10. The opposite end contact plate 48 is connected by a wire 175 with a binding post 176, and the binding post 172 is connected by a wire 177 with a magneto, and the binding post 176 is connected with the wire 178 of the ignition circuit which has its other wire 179 connected with the battery circuit 80.

The operation is as follows:

When the several parts are in the position shown in Figs. 1, 2, 3, 4, 5 and 6 and the keys 118 and 96 are removed then the ignition circuit is open. When an unauthorized person now presses any one of the buttons 23 other than those in the combination 3, 9 and 10 it causes the corresponding switch lever 40 to be actuated whereby the alarm circuit is closed, as previously explained, and the alarm is sounded. As the actuated switch lever is locked against return movement by the spring 83 it is evident that the alarm 81 keeps on sounding and the unauthorized person is foiled in closing the ignition circuit and hence is not able to start the engine. The sounding of the alarm naturally attracts the owner of the machine who, by inserting the key 96 and actuating the mechanism 27, causes the switch lever 74 to move out of engagement with the contact 79 to break the alarm circuit. When the driver desires to start it is necessary for him to press the buttons 23 in the combination, that is, those marked 3, 9 and 10, whereby the corresponding switch levers 40 close the ignition circuit at the corresponding gaps, and when the driver now inserts the key 118 and turns the same then the contact 114 is moved in engagement with the contacts 115 to finally close the ignition circuit thus allowing starting of the engine. The key 96 may be withdrawn by the driver but the key 118 remains in position and when the driver leaves the machine he turns the key 118 back to the withdrawal position and removes it thus moving the contact 114 out of engagement with the contact 115 and at the same time the set switch levers 40 are released and return to their normal inactive position.

It will be noticed that if the unauthorized person should accidentally discover the combination it would be impossible for him to close the ignition circuit unless he had the key 118 and used the same for closing the main ignition circuit at the contacts 114 and 115, as previously explained.

It is understood that the driver can start with either the magneto or the battery on pressing the corresponding button 24 or 25.

It will be noticed that in case an unauthorized person had accidentally set the selected switch levers by pressing the buttons of the combination, (3, 9 and 10) and then

pressed any other button than the selected switch levers the latter would instantly be released by the rocking motion given to the shafts 63 which by the crms 100 actuate the locking catches 56 and thus release the set switch levers of the combination.

It is understood that the driver of the vehicle can readily change the combination by changing the positions of the corresponding numbers 43 of the switch levers 40 and removing the screws 51 from between the corresponding plates 50.

Although but three buttons marked 3, 9 and 10 are in the combination shown and described it is evident that the locking device can be set with more or less buttons in the combination.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. A safety device for internal combustion engines, comprising an ignition circuit, an alarm circuit provided with an alarm switch, mechanism controlling the said alarm switch to close the latter, a series of button controlled switches, sundry selected switches being in operative relation with the said ignition circuit and the remaining switches being in operative relation with the said mechanism to close the alarm switch and sound the alarm whenever such alarm switch is moved into closed position, means to hold said alarm switch in active position to continue sounding of the alarm on release of the said button controlled switch, and a key controlled releasing mechanism connected with the said alarm switch to open the latter and thereby break the alarm circuit.

2. A safety device for internal combustion engines, comprising an ignition circuit, an alarm circuit provided with an alarm switch, mechanism for controlling the said alarm switch to close the latter, a series of button controlled switches, each of which is provided with an adjustable member, the latter in one position being in operative relation to the ignition circuit and when in another position being in operative relation with the said mechanism, sundry of the said switches being selected and having their adjustable members set for operative connection with the ignition circuit and the remaining switches having their adjustable members set for operative connection with the said mechanism to close the alarm switch and to sound an alarm whenever pressed into active position, a key controlled switch for final closing of the said ignition circuit after the selected switches have been actuated, and locking means to lock an ignition circuit controlling switch when in closed position, and a key controlled releasing mechanism connected with the said alarm switch to open the latter and thereby stop the alarm.

3. A safety device for internal combustion engines, comprising an ignition circuit, a series of button controlled switches, sundry selected ones of which are in operative relation with the said ignition circuit, locking means for locking the said selected switches in circuit closing position, a key controlled mechanism, a main ignition switch controlled by the said key controlled mechanism, and a releasing device controlled by the said controlled mechanism and connected with the said locking means to release the selected switches.

4. A safety device for internal combustion engines, comprising an alarm circuit, an alarm switch, a crank shaft connected with the said alarm switch and having cam arms, a series of button controlled switch levers, sundry of which are in operative relation with the said cam arms, and a key controlled mechanism connected with the said alarm switch to throw the latter out of action and to reset the said crank shaft.

5. A safety device for internal combustion engines, comprising an ignition circuit, a series of spring pressed buttons, a series of spring pressed switch levers normally in inactive position and adapted to swing into active position on pressing the corresponding buttons, pairs of spring contacts in the said ignition circuit and adapted to be engaged by the said switch levers, spring catches adapted to lock the said switch levers when moved into active position, a main switch in the ignition circuit, a key controlled mechanism controlling the said main switch, and releasing mechanism connected with the said spring catches and controlled by the said key controlled mechanism.

6. A safety device for internal combustion engines, comprising an ignition circuit, an alarm circuit, a series of manually controlled spring pressed switch levers each provided with an adjustable member having a contact and an angular arm, sets of contacts in the said ignition circuit and sundry of which are adapted to be engaged by the contacts of the correspondingly selected and adjusted members of the said switch levers, an alarm switch having a switch lever, a crank shaft engaging the said alarm switch lever to swing the latter from normally open into closed position, and cam arms on the said crank shaft and adapted to be engaged by the angular arms of the adjustable members of the said switch levers in operative position at a time with the said cam arms.

7. A safety device for internal combustion engines, comprising an ignition circuit, an alarm circuit, a series of manually controlled spring pressed switch levers each provided with an adjustable member having a contact and an angular arm, sets of con-

tacts in the said ignition circuit and sundry of which are adapted to be engaged by the contacts of the correspondingly selected and adjusted members of the said switch levers, an alarm switch having a switch lever, a crank shaft engaging the said alarm switch lever to swing the latter from normally open into closed position. cam arms on the said crank shaft and adapted to be engaged by the angular arms of the adjustable members of the said switch levers in operative position at a time with the said cam arms, and a key controlled mechanism adapted to swing the said alarm switch lever from active position back into normal inactive position.

8. A safety device for internal combustion engines, comprising an ignition circuit, an alarm circuit, a series of contacts in the said ignition circuit, an alarm switch in the said alarm circuit, a crank shaft connected with the said alarm switch, a series of cam arms attached to the said crank shaft and arranged in alternate relation with the said

contacts, a series of switch levers each provided with an adjustable member adapted to be set into operative relation to a corresponding ignition circuit contact or a corresponding cam arm, and means for actuating the said switch levers.

9. A safety device for internal combustion engines, comprising an ignition circuit, an alarm circuit, a series of contacts in the said ignition circuit, an alarm switch in the said alarm circuit, a crank shaft connected with the said alarm switch, a series of cam arms attached to the said crank shaft and arranged in alternate relation with the said contacts, a series of switch levers each provided with an adjustable member adapted to be set into operative relation to a corresponding ignition circuit contact or a corresponding cam arm, means for actuating the said switch levers, and a cut-out switch in the said ignition circuit and controlled from the said crank shaft.

EDWARD R. MOORES.