Jan. 26, 1926. 1,570,797

J. C. THOMAS ET AL

AUTOMOBILE LOCKING DEVICE

Filed April 17, 1923 3 Sheets-Sheet 1

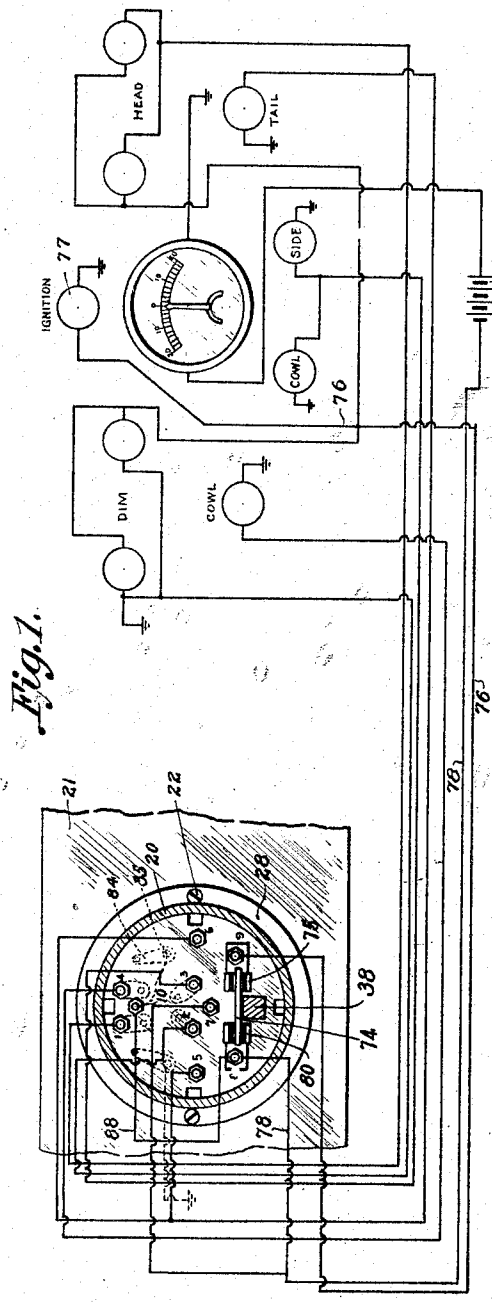


Fig. 1.

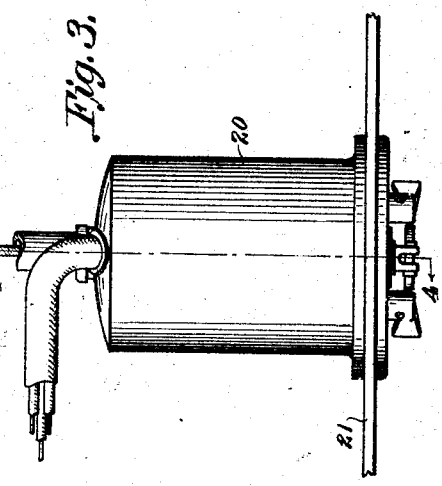


Fig. 3.

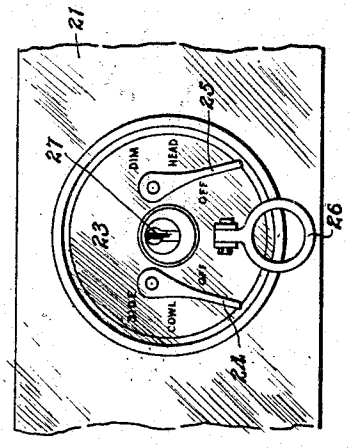


Fig. 2.

Inventor
J Clarence Thomas,
and Charles C. Staiti.

By J. W. Milburn
Attorney

Jan. 26, 1926. 1,570,797

J. C. THOMAS ET AL

AUTOMOBILE LOCKING DEVICE

Filed April 17, 1923 3 Sheets-Sheet 2

Fig. 4.

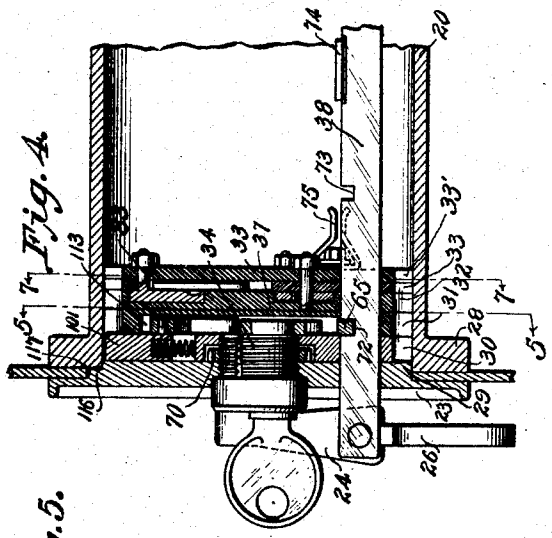


Fig. 9.

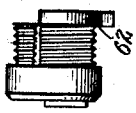


Fig. 8.

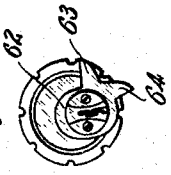


Fig. 5.

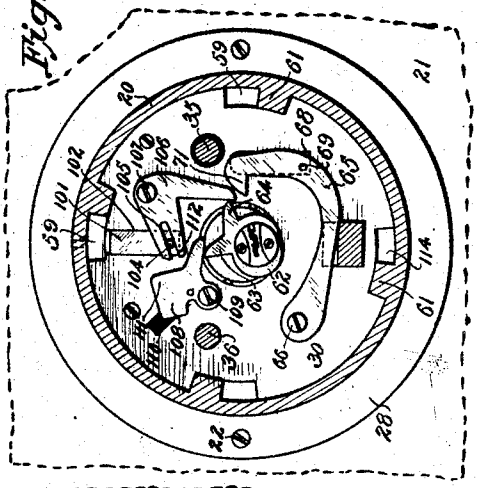


Fig. 7.

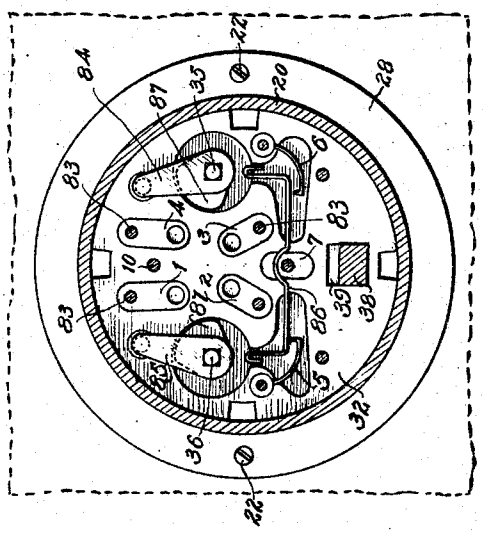
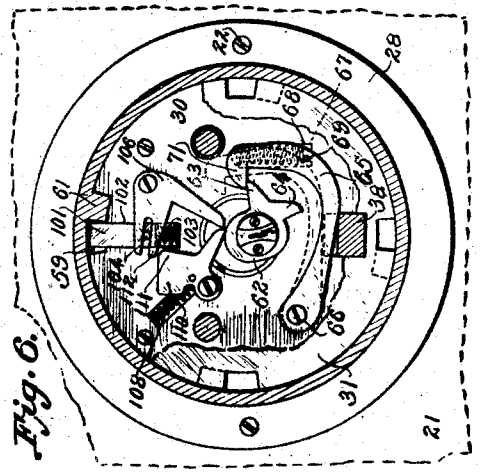


Fig. 6.



Inventor

J. Clarence Thomas,

and Charles C. Staiti.

By J. W. Milburn

Attorney

Jan. 26, 1926. 1,570,797

J. C. THOMAS ET AL

AUTOMOBILE LOCKING DEVICE

Filed April 17, 1923 3 Sheets-Sheet 3

Fig. 12.

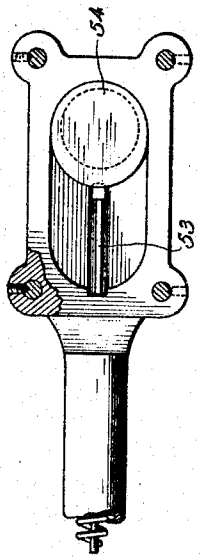


Fig. 10.

Fig. 11.

Inventor

J. Clarence Thomas,

and Charles C. Staiti.

By J. W. Milburn

Attorney

Patented Jan. 26, 1926. 1,570,797

UNITED STATES PATENT OFFICE.

J CLARENCE THOMAS AND CHARLES C. STAITI, OF HOUSTON, TEXAS.

AUTOMOBILE LOCKING DEVICE.

Application filed April 17, 1923. Serial No. 632,729.

To all whom it may concern:

Be it known that we, J CLARENCE THOMAS and CHARLES C. STAITI, citizens of the United States, residing at Houston, in the county of Harris and State of Texas, have invented certain new and useful Improvements in Automobile Locking Devices, of which the following is a specification.

This invention relates to improvements in locking devices for automobiles and more particularly to a locking device which will cut off the supply of gasoline to the motor and break the circuits controlling the ignition and lighting systems.

When cars are stolen or operated by unauthorized persons it is due to the fact that it is possible to "short" the ignition circuit even though the usual switch lock is in the locked position or to the fact that the car owner has left his switch unlocked. With our device the car owner is forced to use the safeguard which is afforded. He cannot use the car unless it is in the unlocked position and he must turn the key in the lock and avail himself of the tripple safeguard which is afforded or his engine will continue to run and his lights burn (if at night) until he turns the key in the lock and cuts off the fuel supply, ignition and lights.

Devices of this type fail to afford absolute protection for the reason that they can be tampered with and rendered inoperative in whole or in part.

For these reasons it is desirable to have a locking device so constructed and arranged that none of the operating parts is accessible while the device is in locked condition.

An important object of the present invention is to provide a locking device which positively prevents the unauthorized operation of the automobile on which it is installed and which includes means for entirely cutting off the supply of gasoline to the engine and rendering the ignition system inoperative. In addition, the device prevents unauthorized manipulation of, or tampering with, the lights of the car and makes it impossible to light the headlights when the device is in operative position, this being accomplished without interfering with the parking light circuit.

The shutting off of the gasoline and the breaking of the ignition and lighting circuits are effected by a single device, which is unitary and compact and may be readily substituted for the usual lighting and ignition switch. A single operation of the device effects these three measures.

Our device is designed and arranged as an interlocking unit in that no part of the structure can be tampered with and still permit the car to be driven under its own power. All of the elements which hold the parts of the device together are protected in that they are within the body of the device and cannot be reached unless the lock is operated by the proper key.

When the device is utilized it not only absolutely prevents the operation of the motor but also may result in a considerable saving of the batteries, since it prevents children and other unauthorized persons from turning on the headlights and thus running down the batteries, in the absence of the owner of the car.

The security thus afforded by the device against theft of the car and injury to its batteries is made certain and the parts of the device protected by means of a housing which completely encloses the vital parts of the device and is so arranged and constructed as to present no opportunity for unauthorized access thereto. A single locking means controllable by a single key serves to positively hold and lock the gas, ignition and lighting control device in operative or cut-off position and also to lock the protective housing tightly and securely to the rear of the instrument board in such a way as to render the parts of the device inaccessible even with the aid of tools to any one other than the owner, or the person having the key to the device.

Other objects and advantages of the invention will appear in the following specification, reference being had to the accompanying drawings, in which:

Figure 1 is a diagrammatic view showing

the wiring system used in connection with the locking device;

Figure 2 is a front view showing the locking means applied to the instrument board of an automobile;

Figure 3 is a top view of the lock casing as mounted on the instrument board of an automobile;

Figure 4 is a cross sectional view taken on the line 4—4 of Figure 3;

Figure 5 is a cross sectional view partly broken away, on the line 5—5 of Figure 4;

Figure 6 is a view similar to Figure 5 showing the position of the operating members at a different step of the operation of the device;

Figure 7 is a cross sectional view on the line 7—7 of Figure 4;

Figure 8 is an elevational view of the operating cam disk of the device;

Figure 9 is a side elevational view of the operating cam disk;

Figure 10 is a view partly in cross section and partly in side elevation of the device connected to the gasoline supply pipe of the automobile;

Figure 11 is a cross sectional view of the lock casing with the mechanism therein partly in top elevation, and partly in sectional view; and

Figure 12 is a view taken on the line 12—12 of Figure 10 with one corner of the valve casing in the supply pipe broken away.

In the drawings, where similar reference numerals indicate like parts throughout the views, the numeral 20 indicates a metal casing fixed to the instrument board 21 of an automobile by screws or other fastening means 22. The front of the casing 20 is closed by a metal dial 23 similar to the usual ignition and lighting system dial and provided with lighting switch levers 24 and 25 and a pivoted handle 26, the latter for a purpose hereinafter set forth. A key hole 27 is centrally located upon the dial 23.

The lock casing is flanged, as at 28, about its exterior directly behind the instrument board 21. The metal dial is provided with an upstanding lug 116 which fits into a recess 117 in the instrument board 21 to prevent the rotation of the dial. A backwardly extending portion 29 is also included in the dial structure and is fitted in the front end of the lock casing 20 and it carries two metal plates 30, 31 and three fibre plates 32, 33 and 33′, respectively. The metal plates 30 and 31 are held against the dial 23 by countersunk screws 115 extending through the plates 30 and 31 and into the backwardly extending portion 29 of the dial 23. The fibre plates 32, 33 and 33′ are held together and with the metal plates by rivets or bolts or any suitable fastening about their edges. These superimposed plates are generically indicated by the numeral 37.

A sliding bar 38 extends through aligned openings 39 is the series of plates 37. Bar 38 has the pivoted handle 26 attached to its forward and projecting end and is connected to a relatively short rod 40 at its rear or inner end 41 by any suitable detachable connection 42. The relatively short rod 41 is slidable in the end of a tube or pipe 43 which is fixed in the closed rear wall 44 of the casing 20 by a screw-threaded connection 45 and lock nuts 46 or any other substantial "theft-proof" connection.

As shown in Figure 10 the tube 43 is connected at its other end to a fitting indicated by the numeral 47 which may include an elbow 48. A valve casing 49 at some point in the fuel supply pipe 50, preferably immediately above the carburetor 51, carries the fitting 47. A cable or Bowden wire 52 is fixed to the inner end of the relatively short rod 41 and extends through the tube 43 and fitting 47 and is swivel-jointed as at 58 to a rod 53 carried by the valve 54 in the valve casing 49. It will be noted that a roller 55 may be provided in an elbow 48 which may be included in the line of tubing and that a coil spring 56 within the fitting 47 bears against a flange 57 on the rod 53 to hold the valve 54 closed and the gasoline supply cut off when the sliding bar 38 is in retracted position.

As shown in Figures 4 and 11 the series of plates 37 are provided with circumferentially spaced recesses 59 which extend from the rear fibre plate 33′ to and through the metal plate 30. The latter plate has somewhat wider recesses than the rear plates as shown at 60 and these recesses 60 are so aligned with the recesses 59 that the effect is to have the series of plates 37 provided with circumferentially spaced bayonet slots 114 which fit over inwardly extending and circumferentially spaced lugs 61 on the interior of the front end of the lock casing 20. Thus, in assembling, the series of plates 37 can be fitted into the front end of the casing 20 as the recesses 59 will align with the lugs 61 and then the limit of inward movement has been reached by the abutment of plate 29 against the lugs, a slight turn will move the lugs 61 into the offset portion 60 of the bayonet slots 114.

As stated, the keyhole chamber 34 extends through the dial 23 and plates 30 and 31. It is locked in this position by a nut 70 between the plates and at its inner end, and rotatable thereon when the proper key is inserted and turned in the tumbler or key hole chamber 34, is an irregularly outlined disk 62 having shoulders 63 and 64 upon its periphery. A substantially right-angle-shaped latch 65 is pivoted to the plate 30 at 66 and is normally held downwardly to bear against the sliding bar 38 by a coil spring 67 in a slot 68 in plate 30 and

acting against a pin 69 carried on the free end of the latch 65. The free end of the latch 65 is hook-shaped as at 71 and is adapted to be thereby engaged by the shoulder 63 on the cam disk 62 when the key is turned to move the disk in a counterclockwise direction as in Figures 5 and 6. The result of this action will be to raise the latch 65 from its engagement in the forward recess 72 in the sliding bar 38. When this occurs the bar 38 may be pulled forward from retracted position by its pivoted handle 26 and will act through the wire 52 to move the valve 54 in the gasoline pipe 50 to open the latter.

A continued pull on the handle 26 will bring a rear recess 73 in bar 38 into alignment with the latch 65 and the latter will be moved into recess 73 by action of spring 67. The valve 54 will then be locked in open position. When the key has been rotated in the lock chamber 34 to be withdrawn from the chamber, it will place the disk 62 in such a position that the shoulder 64 will be directly above the arm of the latch at a point over the bar 38 as shown in Figure 6, and any attempt to force the latch upward will be forestalled.

Control of the electric circuits of the automobile through our device is afforded by a contact member 74 carried by, and insulated from, the sliding bar 38. The position of this contact on the bar 38 is such that when the latter is in its outermost position, that is, when the latch 65 is in the rear recess 73, the contact 74 will bridge the contact clips 75 and 80 carried on the innermost fibre plate 33′ at either side of the bar 38.

As has been stated, switch levers 24 and 25 are provided on the dial plate 23 and control the side and cowl lighting circuits and the headlight circuits, respectively. These levers are carried by rotatable shafts 35 and 36 respectively which extend through the metal plates 23, 29, 30 and 31 and the fibre plate 32. Fibre plate 33 has its center portion cut away to accommodate the movement of switch arms 84 and 85 carried by the shafts 35 and 36 and controlled by the switch levers 24 and 25, respectively.

Referring to Figures 4 and 7 it will be seen that a plurality of contact blocks are imbedded in the fibre plate 32. One end of each of the contact blocks 1, 2, 3 and 4 is in the path of movement of one of the switch arms 84 or 85 and the other ends of the blocks carry binding posts 83 which extend through the plates 33 and 33′. A metal block 7 is also embedded in the fibre plate 32 and carries a spring arm 86 which extends into cut-out portions of the fibre plate 32 and has its outer ends upturned and arranged in the path of movement of fibre cams 87 carried by the switch shafts 35 and 36 in front of the switch arms 84 and 85. Springs 5 and 6 are located at either end of the spring arm 86 as shown in Figure 7 but are normally out of contact engagement therewith. Binding posts 83, as described, are provided for each of the springs 5 and 6 and also for the block 7 carrying the spring arm 86.

Binding posts 8 and 9 are placed on either side of contact clips 75 and 80 carried on the innermost fibre plate 33′. Binding post 8 is in circuit with the battery 79 through lead 78 and post 9 is connected to the ignition system 77, and the head and dim lights by lead 76, as shown in Figure 1. In order to supply the switch arm 84 with current a connection is made from binding post 8 to the insulated binding post 10 by a lead 88 and from this post a connection (not shown) is made to the shaft 35 of the switch arm 84. These connections are insulated and lie between the fibre plates 32 and 33.

Independence of the parking or sidelight circuit controlled by switch arm 84 is obtained by surrounding shaft 35, which carries arm 84, with an insulating bushing so that the metal body or ground of the device will not be in circuit with this switch arm.

The circuits shown in Figure 1 are so connected that the tail light is always operated with the headlights, dim headlights and sidelights and so arranged that the circuits can not be crossed or interfered with and their operation is as follows:

When switch lever 25 is moved to the position of "Head," switch arm 85 is in contact with the contact block 1. The fibre cam 87 underneath the switch arm 85 will depress the adjacent end of spring arm 86 carried by block 7 and cause it to make a contact with the spring 5 to which the tail light is wired as shown, and the headlights and tail light will now burn. When the switch lever 25 is moved to the position of "Dim" the switch arm 85 is in contact with contact block 2 which is wired to the dim light circuit, and as cam 87 will still hold spring arm 86 against spring 5 the dim lights and tail light will burn. A return of switch lever 25 to "Off" position will extinguish all lights controlled by lever 25. It will be seen that the lights controlled by switch lever 25 will not burn unless contact 74 carried by the sliding bar 38 is in contact with the clips 75 and 80.

When switch 24 is moved to the position of "Cowl," contact is made between switch arm 84 and contact block 4 and the cowl light will burn. At the position of "Side," switch arm 84 contacts with block 3. In each position the cam 87 causes spring 86 to be depressed to make a contact with spring 6 to which the tail light is wired and the side lights and tail lights will burn.

When switch lever 24 is at "Off" all lights controlled thereby will be extinguished. It is not necessary for the contacts 74 carried by bar 38 to be in engagement with the clips 75 and 80 to cause these circuits to operate as the lead 88 and the lead to the switch arm 84 will maintain a circuit to the battery. Thus the headlight circuit may be locked in "Off" position without affecting the parking and side light circuits.

The electric wires for the various circuits are brought to their binding posts in the casing 20 by an armored cable 99 which passes through the rear wall 44 of the casing at 100.

Locking means to prevent the removal of the series of plates 37 from the casing 20 are provided in a bolt 101 movable in a radial slot 102 in the plate 30. The slot 102 opens into one of the circumferentially spaced recesses 60 and is aligned with the series of narrower recesses 59 as shown in Figure 11. The position of the bolt as regards the bayonet slot 114 is therefore such that it must first be depressed before the casing 20 may be turned to align the lugs 61 with the recesses 59 to withdraw the casing from about the plates 37. A coil spring 103 is positioned in the slot 102 behind bolt 101 and normally holds the latter in outward position to hold the casing against rotation.

The bolt 101 carries an upstanding pin 104 on the rear surface thereof and this pin moves in a slot 105 in one end 112 a bellcrank 106 pivoted to the plate 30 at 107. On the opposite side of the bolt 101 is a lever 108 pivoted to plate 30 at 109. The free end of lever 108 is normally held against the disk 62 by a coil spring 110 in a recess in plate 30 which acts on a pin carried by the lever. The opposite end of lever 108 is provided with a beveled cam 111 which is normally positioned below the slotted end 112 of the bellcrank 106. This positively prevents any inward movement of bolt 101 by the insertion of a tool in the bayonet slot 114.

The bolt 101 may only be retracted by a three-quarter clockwise rotation, as regards Figures 5 and 6 of the drawings, of the disk 62 by the proper key. The result of this rotation of disk 62 will first be to move the shoulder 64 carried thereby under the lever 108 to raise the latter, and continued movement will carry shoulder 64 to strike the lower arm of bellcrank 106. At the same time the shoulder 63 will move under lever 108 and will raise the latter to swing the cam 111 from beneath the slotted end 112 of bellcrank 106. The shoulder 64 will then be free to swing the bellcrank 106 to move its slotted end 112 and, through this, the bolt 101, inwardly. The bolt being retracted and the screws 22 removed the casing 20 may be rotated and withdrawn from about the plates 37 to permit inspection or repair of the wiring. When the latch 65 is raised and handle 26 removed from the sliding bar 38 the series of plates 37 may be removed. It will be seen that the return movement, counterclockwise from the position shown in Figure 5 of the disk 62, will not be prevented by the lever 108 as the shoulder 64 is beveled on the proper side to raise the lever and readily pass under it.

It will be understood that the metal plate 31 is recessed as at 113 to accommodate the lever, latch and bellcrank carried on the plate 30.

From the foregoing description it will be seen that a positive locking device is provided which will control the ignition system, the gasoline supply and the lighting circuits. A summary of the method of operation is as follows: When the owner is in the car and driving it he will have the sliding bar 38 in its outermost position and it will be held there by the presence of latch 65 in the rear recess 73. The contact 74 will then bridge the contact clips 75 and 80 and the ignition system 77 will be in circuit with the battery. The headlight circuit will also be rendered operative by the same operation. The gasoline supply valve 54 will be open and the engine may therefore be operated.

When, however, the owner leaves the car he may place the car in an absolutely inoperative condition by turning the key in the lock chamber 34 to raise the latch 38 from the rear recess 73. The spring 56 in the fitting 47 which acts on the flange 57 of the valve rod 53 will immediately draw the sliding bar 38 to retracted position and the latch will drop into recess 72 and the key may be withdrawn. The gasoline supply valve 54 will thus be closed and the contact 74 will be separated from the contact clips 75 and 80. The result of this latter action will be to break the circuit between the battery 79 and the ignition system 77 and to also break the headlight circuit but will not interfere with the parking light circuit as heretofore explained. However, the parking light circuit will be closed as far as our device is concerned for the leads therefrom connected across binding post 82 to the battery 79 will not be interfered with.

The indicator dial 23 bearing upon the forward side of the instrument board 21 and the flange 28 of the casing 20 bearing against the rear side thereof will prevent access being had to the interior of the casing by its being removed from the instrument board. And the bolt 101 in the bayonet slot 114 will prevent the rotation of the plates to remove them from the casing, and as before stated, the latch 65 and bolt 101 are both held against displacement when the key is out of the lock by positive camming action. Nevertheless the plates 37 may always be readily removed and the casing 20 moved

from the instrument board by the owner of the car so that repairs may be made by merely turning the key to release the bolt 101.

Loss or damage to automobiles by fire is usually caused by the accumulation of gas in the engine when the ignition circuit is broken; the rapidly rotating engine sucking large quantities of gas into the cylinders where it is expelled into the hot exhaust pipe or muffler, producing what is commonly known as "backfiring". This is prevented in our device for as soon as the ignition circuit is broken the valve in the fuel conduit will close and no explosive mixture can enter the cylinders.

Electrical equipment and battery manufacturers claim that most trouble with their equipment on automobiles is due to people thoughtlessly leaving the ignition or lighting switches in circuit or their being turned on by unauthorzed parties. This difficulty is entirely overcome by this device. The only circuits that can be operated with our device locked are the cowl light or the side lights with tail light in circuit. As these lights use a very small amount of current the battery could not be depleted.

It will be seen that a compact structure in which every element is safeguarded against surreptitious tampering is here provided. All of the controls necessary to operate the car are rendered inoperative and the device is so arranged that they will be positively held inoperative. The tube 43 which carries the wire or cable attached to the fuel supply valve 54 cannot be unscrewed unless the housing is unlocked and slipped down to a point where clearance can be obtained for the lugs attached to the lock nut 46 which is attached to the end of the tube inside of the housing. The lock bolts on the slide rod and housing cannot be moved unless the proper key is inserted and they are rotated to the unlocked position. Any effort to tamper with or disable the device must therefore necessarily result in putting the car in an inoperable condition.

What we claim is:

1. In a locking device for automobiles, the combination of a fuel supply conduit, a control valve therefor, a casing enclosing said valve, an ignition circuit, a lighting circuit, a lock casing carried by the dash, a control device operable from the dash to actuate the fuel supply valve, contacts carried by said control device within the lock casing for making or breaking the ignition and lighting circuits when the fuel supply valve is opened or closed, respectively, and a locking device comprising selectively operable lock members adapted to lock said control or lock the casing to the dash.

2. In a locking device for automobiles, a lock casing, a cover for said casing, operating means within said casing for controlling the fuel supply and electrical circuits, locking means for normally locking said operating means, locking means for locking said cover to said casing, and control means for operating either of said locking means independently of the other.

3. In a locking device for automobiles, a lock casing, a cover for said casing, a bar slidable within said casing, said bar being adapted to control the fuel supply and electrical circuits, a bolt normally in locking engagement with said bar, a bolt adapted to lock said cover to said casing, means for moving said first-named bolt from engagement with said bar, or for moving said second-named bolt from engagement with said casing.

4. In a locking device for automobiles, a lock casing, a cover for said casing, a bar slidable within said casing, said bar being adapted to control the fuel supply and electrical circuits, a bolt normally in locking engagement with said bar, a bolt adapted to lock said cover plate to said casing, a rotatable lock spindle to move said first-named bolt from engagement with said slidable bar when rotated in one direction and to move said second-named bolt from engagement with said casing when rotated in the opposite direction.

5. In a locking device for automobiles, a lock casing, a cover for said casing, a bar slidable within said casing, said bar being adapted to control the fuel supply, a bolt normally in locking engagement with said bar, a bolt adapted to lock said cover to said casing, means in the path of retractive movement of said bolt to hold it against unauthorized release, means for moving said first-named bolt from engagement with said bar, or for moving said means from the path of movement of said second-named bolt and retracting said bolt.

6. The combination with a locking device for automobiles, including a lock casing and a cover for said casing, of means to lock said casing cover comprising a bolt, a rotatable lock spindle, an operating cam carried thereby and adapted to operate said bolt and means in the path of retracting movement of said bolt to hold it against unauthorized release, said means being moved from the path of movement of said bolt by movement of said operating cam.

7. The combination with a locking device for automobiles, including a lock casing, a cover for said casing and a bar slidable in said casing, said bar being adapted to control the fuel supply and electrical circuits of the automobile, of means to lock said casing cover and said bar comprising a rotatable lock spindle, an operating cam carried thereby, a pivoted bolt normally held in locking engagement with said bar

and having its free end arranged in the path of movement of said operating cam, whereby it may be released from engagement with said bar, a sliding bolt adapted to lock said casing cover, a bolt operating bell-crank, one arm of said bell-crank operatively engaging said bolt and the other arm being arranged in the path of movement of said operating cam whereby the bolt will be operated, a second bell-crank having one arm arranged in the path movement of said bolt-operating bell-crank, whereby said sliding bolt will be positively held in locking position and the other arm of said bell crank being arranged in the path of movement of said cam, whereby said bell-crank may be moved from the path of movement of said bolt-operating bell-crank.

J. CLARENCE THOMAS.
CHARLES C. STAITI.