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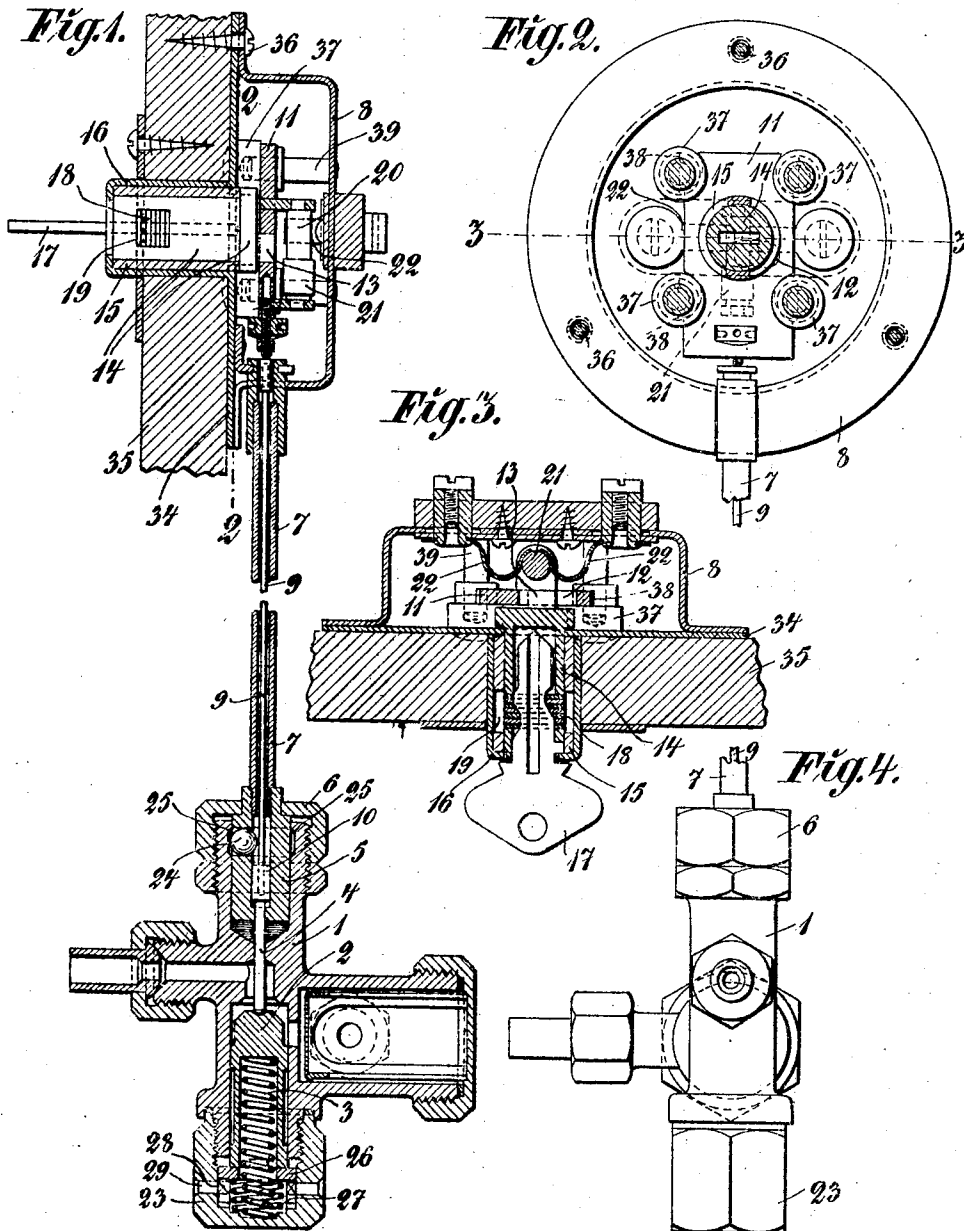
1,531,970

C. E. J. NILSON

LOCKING DEVICE FOR MOTOR DRIVEN VEHICLES

Filed Dec. 26, 1922

2 Sheets-Sheet 1



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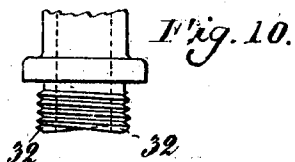
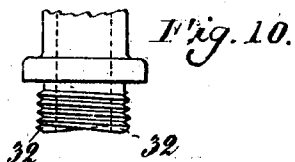
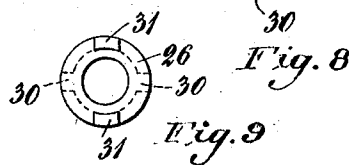
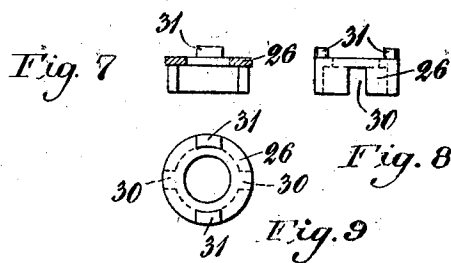
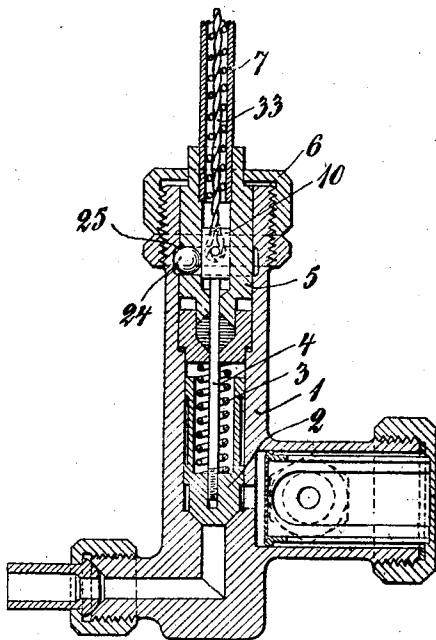
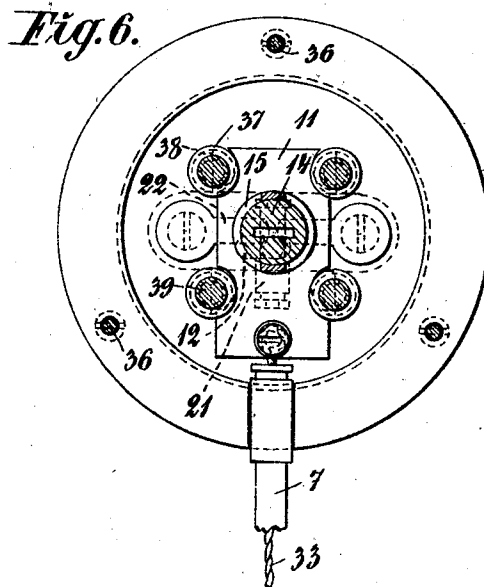
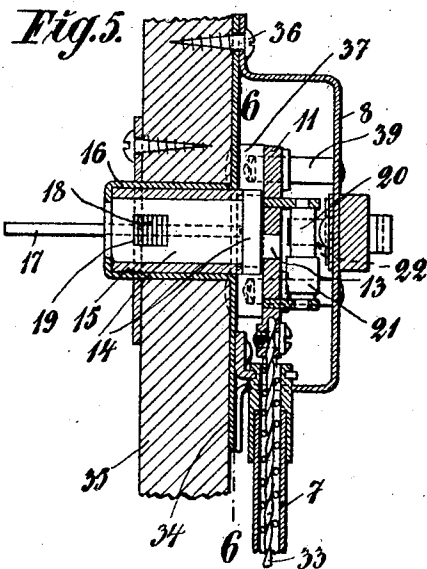
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LOCKING DEVICE FOR MOTOR DRIVEN VEHICLES

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2 Sheets-Sheet 2



INVENTOR:

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UNITED STATES PATENT OFFICE.

CARL ERIK JEAN NILSON, OF STOCKHOLM, SWEDEN.

LOCKING DEVICE FOR MOTOR-DRIVEN VEHICLES.

Application filed December 26, 1922. Serial No. 609,157.

To all whom it may concern:

Be it known that I, CARL ERIK JEAN NILSON, a subject of the King of Sweden, and residing at Vanadisvägen 31, Stockholm, Sweden, have invented certain new and useful Improvements in Locking Devices for Motor-Driven Vehicles, of which the following is a specification, reference being made to the accompanying drawing.

The present invention relates to a locking device for motor driven vehicles, particularly automobiles and motor boats of the kind in which the motor consists of an internal combustion motor.

The main feature of the invention consists of the provision in the fuel supply of the motor of a valve casing having a valve adapted to be controlled by means of a lock which is provided with a key and which may be mounted at any desired distance from the valve and on any desired place on the vehicle, preferably, however, within the reach of the driver when on his seat. The lock which may be of any suitable kind is arranged inside a casing or a box wherein are mounted the movable parts that are actuated by means of the key appertaining to the lock and that are in such a connection with the movable valve in the valve box inserted into the fuel supply that this latter may, as desired, be cut off or opened.

The invention further consists therein that when the fuel valve is being actuated by means of the key in the block, a switch controlling an electrical circuit pertaining to the motor will at the same time and by the same operation of the key be actuated in such a way that the switch then will be locked in the position in which it has been moved at the operation until the valve is again actuated by means of the key.

The invention further consists therein that the said lock casing or box is provided with means adapted to be moved in such positions when the fuel supply is cut off that the lid of the box will be in such locked position that the box cannot be opened until the fuel supply has been opened by means of the lock having been actuated with the key appertaining to the same.

The invention also comprises means adapted to make the valve in the valve casing accessible only when the fuel supply has been opened by means of the key and

thus inaccessible when the fuel supply has been cut off by means of the key.

The connection between that part of the lock which is actuated by means of the key, and the valve in the valve casing consists, as the case may be, of a suitable cord or the like which when actuated is under tension, or a flexible wire or rod, which, when actuated, is under compression. Whether the connection is of the one kind or the other, the cord or the wire is enclosed within a tube, the one end of which is connected to the lock casing or box and the other end to the valve box, the cord or the wire being thus always inaccessible for outsiders.

The object of the invention is that, when the motor of the vehicle is stopped, not only the fuel supply may be cut off and locked and the switch controlling the electrical circuit of the motor may be set, so that a starting of the motor cannot be effected by outsiders, but also the closing devices for the casings, wherein are placed the movable parts by means of which the fuel supply is cut off and opened, may be operated simultaneously with the cutting off of the fuel supply and in a single operation, i. e., the turning of the key, and then moved in such positions, that said casings cannot be opened until the fuel supply again is opened and thus the said parts in the casings be inaccessible as long as the fuel supply is cut off. Obviously it is of a great importance that, when the fuel supply is cut off with the aid of the key and the lock, also all such parts which act as connecting members between the lock and the valve, at the same time are made inaccessible in order that the fuel supply again can be opened only with the aid of the key and not by opening any of said casings whereby the members therein connecting the lock and the valve would be allowed to be operated by hand.

The invention is illustrated on the accompanying drawings wherein Figure 1 is a longitudinal section of one form of embodiment of the invention. Figure 2 is a section on the line 2—2 in Figure 1. Figure 3 is a cross sectional view of the casing and members therein on the line 3—3 in Figure 2. Figure 4 is a side view of the valve box. Figure 5 is a longitudinal section of a modified form of execution of the

arrangement. Figure 6 is a section on the line 6-6 in Figure 5. Figure 7 is a section of a detail. Figure 8 is a side elevation of the same and Figure 9 is a top plan view thereof. Figure 10 is a side elevation of another detail.

1 designates the valve casing in the fuel supply through which the fuel is passing on its way to the motor when the valve is open. This valve 2 is actuated by a spring 3 tending to move the same against its seat. In the form of execution illustrated in Figure 1 the one end of a rod 4 is resting against the valve 2 on the side opposite the spring, while the other end of the said rod extends into a socket 5 inserted into the valve casing said socket being retained in the valve casing by a cap 6 threaded on the box. A tube 7 that is connected with the socket 5 extends from this latter, preferably the nearest way, on which it may be drawn in any suitable curves, to the casing or box 8 mounted at the place of the driver on the instrument board or any other suitable place, with said box being connected the other end of the tube 7. Through the whole length of the tube 7 extends a comparatively fine flexible steel wire 9 (piano wire or the like) which is displaceable in the tube. The end of the wire entering the valve casing rests against a slide 10 fitted into the socket 5 and being also connected with the rod 4, while the other end of the steel wire entering into the box 8 is in connection with a slide 11 in this latter, said slide being provided with a slot 12 for a pin 13 which is mounted eccentrically on the end of a bolt 14. This bolt is mounted rotatably inside a sleeve 15, which is secured to the inside of an extension 16 on the box, and is provided with a central recess for a key 17. In the bolt may be arranged the key wards 18, which by inserting the key in the bolt are moved to such positions that the bolt may be rotated inside the sleeve 15, but by drawing out the key from the bolt, enter into openings 19 in the sleeve 15 so that the bolt cannot be rotated until the proper key again is inserted in the same. On rotating the bolt 14 the slide 11 is displaced and thus also the steel wire in tube 7, the valve being then, as is easily understood, opened when the steel wire is moved in the one direction and shut by the spring 3 when the wire is moved in the other direction.

The slide 11 carries a device by means of which an electrical circuit of the motor may be broken or closed according as the slide is moved to occupy the one or the other of its end positions. This device consists of a rod 20 of an insulating material carried by the slide and provided at a suitable place along its length with a surrounding metal strip 21 or the like. When the valve 2 has been moved in one position by the slide the metal

strip 21 is placed between two contact springs 22, the said circuit being then closed, but when the valve 2 has been moved into its other position by the slide the metal strip is out of contact with the contact springs 22 and the circuit thus broken. The electric conductors may evidently be in connection with the contact springs 22 in any convenient manner.

In order that valve 2 after having been shut by means of the lock, may not again be opened otherwise than by means of the key, it is evidently necessary that neither any part of the valve box may be loosened or detached and the valve thus be made accessible and operated by hand, nor the box 8 may be opened and thus the slide therein may be set by hand and the valve thereby opened.

A setting by hand of the valve 2 may be prevented if the socket 5 is fixed in position when the valve 2 is shut and the cap 6 removed. Furthermore the cap 23, against which the spring 3 is resting, cannot be unscrewed when the valve 2 is shut.

By shutting the valve 2 a locking of the socket 5 is effected by means of a ball 24 placed in an aperture in the wall of the socket and of a diameter somewhat in excess of the thickness of the wall of said socket. In the inner side of the wall of the valve casing is provided a circumferential groove 25, which is opposite the ball when the socket is in proper position in the valve casing. When the valve 2 is shut the ball is pushed into the groove 25 by the slide 10 on the rod 4, the socket being then locked in the valve casing, so that the same cannot be pulled upwards and the valve opened, should the cap 6 be unscrewed for the purpose of opening the valve when this latter is shut by means of the lock and key. Not until the valve has been opened to such an extent that the slide 10 has passed the ball, may the socket 5 be pulled out of the valve casing.

By shutting the valve 2 a locking of the cap 23 is effected by means of a cup 26, Figures 7 and 9, inserted upside down in the cap 23 and having the outer diameter equal to the inner diameter of the cap 23. In the bottom of the cup 26 is provided an opening for the spring 3, in order that the cup may be allowed to move up and down without being hindered by the spring in such movement. Round the outside of the spring 3 and inside the cup is provided a spring 27 resting against the bottom of the cap 23 and pressing the cup 26 upwards. Inside the cap 23 and diametrically opposite each other are two lugs 28, each of which forms the head of a rivet 29 the other head of which is counter-sunk on the outside of the cap. The lugs 28 enter into slots 30 in the sides of the cup 26, thus allowing this latter to move freely up and

down but preventing the same from rotating in the cap 23. Furthermore the cup 26 is provided on its bottom with two lugs 31 adapted to cooperate with shoulders 32 on the end of the valve casing, resembling ratchet teeth, Figure 10. When the valve is shut the lower edge of this latter is somewhat above the bottom of the cup 26, which is pressed upwards against the end of the valve casing. If then an attempt should be made to unscrew the cap 23 from the valve casing when the valve 2 is in said position, the lugs 31 on the cup, which cannot rotate in the cap, are stopped by the ratchet teeth on the end of the valve casing, thus preventing the intended unscrewing. Upon opening of the valve 2 by means of the lock and the key the lower edge of the valve will push the cup 26 so far below the lower edge of the valve casing that the lugs 31 on the cup come below the ratchet teeth, and thus do not prevent the unscrewing of the cap.

In the above described device the valve 2 is opened with the aid of the flexible steel wire 9 which, when the lock is operated, pushes the valve 2 from its seat. It is, however, obvious that the valve 2 with the aid of the same lock mechanism and the same movable parts in connection with the lock may be opened with the aid of a metallic cord 33 or the like connecting the slide 11 with the slide 10 and placed in the tube 7, which as above described connects the casing or box 8 with the socket 5. This modified embodiment of the invention, which is shown in Figure 5, can be so simplified that the above described cap 23 and the parts connected therewith can be done away with. As the valve 2 in this case has to be lifted from its seat, when it is to be opened, the lower end of the rod 4 is fixed to the valve and the spring 3 placed round the rod and so mounted that it will push the valve downward against its seat.

Whether the valve is actuated by means of a pulling or pushing device the above described lock with slide and switch, mounted in the box 8, may be used. The extension 16 on the box projects preferably from the lid 34 of the box and is, by preference, somewhat longer than the thickness of the instrument board 35 of the vehicle, as indicated on the drawing. It will thus be possible to mount the box on the back side of the board, whereby only the front end of the lock will be visible on the front side of the board. The box is secured to the board by means of screws 36. In order to make it impossible to open the box by removing the screws 36 when the valve 2 is shut the following provision is made. To the inside of the lid of the box is secured a number of sockets 37 each of

which is in its side provided with a recess 38 which is adapted to serve as a guide for the slide 11. From the inner side of the bottom of the box project corresponding pins 39 which occupy such positions that, when the box is placed against the lid, the pins will enter into the sockets 37. Said pins are also provided with recesses which, when the box is placed against the lid, register with the recesses 38 in the sockets, so that the slide also enters into the recesses in the pins. Each of the edges of the slide entering into said recesses is provided with notches, corresponding to the sockets 37. When the slide after having been actuated by the key occupies such a position that the valve 2 is fully opened and the box 8 may be removed, the said notches and the edges of the slide are in such positions that said edges do not enter into the recesses in the pins but still are sufficiently supported by the sockets 37, thus allowing the box to be removed from the lid when the screws 36 have been removed.

That end of the tube 7 which extends into the box is preferably securely attached to the lid of the box, in order that the said end of the tube may be left intact when the box is removed from the lid. The steel wire 9 or the cord 33 may be connected to the slide 11 in any convenient manner. When the steel wire or the cord is detached from the slide, this latter may be removed from the sockets 37 by placing the slide in such a position that the notches in the edges of the slide register with the sockets.

It is to be understood that the invention is not limited to the particular details of construction or arrangement which have been shown for the sake of illustration but includes modifications which fall within the scope of the appended claims.

Having now described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a device of the class described, in combination, a switch adapted to control an electrical circuit pertaining to an internal combustion engine, a key controlled reciprocating member for opening and closing the switch, a valve casing remote from said switch, a reciprocable valve therein adapted to control the fuel supply to said engine, a closure for the valve casing, means for opening and closing the valve comprising an operating connection between the valve and the reciprocating member, and latch means for preventing opening of said closure when the valve is in one position.

2. In a device of the class described, in combination, a switch adapted to control an electrical circuit pertaining to an internal combustion engine, an actuating member for opening and closing the switch, a valve cas-

ing, a valve therein adapted to control the fuel supply to said engine, a closure for the valve casing, means for opening and closing the valve comprising an operating connection between the valve and the actuating member, and means operated by the movement of the valve for preventing opening of said closure when the valve is in one position.

10 3. In a device of the class described, in combination, a switch adapted to control an electrical circuit pertaining to an internal combustion engine, an actuating member for opening and closing the switch, a valve casing having a recess therein, a valve in the casing adapted to control the fuel supply of the engine, a closure for the casing having a recess, a locking member in said closure recess, means for opening and closing the valve comprising an operating connection between the valve and the actuating member, and means operated by the movement of the valve to position the locking member in both of said recesses.

25 4. In a device of the class described in combination, a switch adapted to control an electrical circuit pertaining to an internal combustion engine, an actuating member for opening and closing the switch, a valve casing, a valve therein

adapted to control the fuel supply to said engine, an operating connection between the actuating member and the valve for moving the valve in one direction, a spring for moving the valve in the opposite direction, a cap for retaining the spring and means for preventing the removal of the cap when the valve is in one position.

5. A device of the class described, in combination, a housing, a closure therefor, a switch therein adapted to control an electric circuit of an internal combustion engine, a switch actuating member therein, lock means operatively connected to said actuating member, a valve casing, a valve therein adapted to control the fuel supply to said engine, an operating connection between the actuating member and the valve to open and close said valve, a closure for the valve casing and means controlled by the actuating member for preventing the removal of either of said closures when said valve is in one position.

In witness whereof I have hereunto set my hand in presence of two witnesses.

CARL ERIK JEAN NILSON.

Witnesses:

CARL TH. SUNDHOLM,
R. TOTTERMAN.