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1,544,261

W. METZROTH

CONTROLLING MEANS FOR STARTERS FOR INTERNAL COMBUSTION ENGINES

Filed Oct. 13, 1922

2 Sheets-Sheet 1

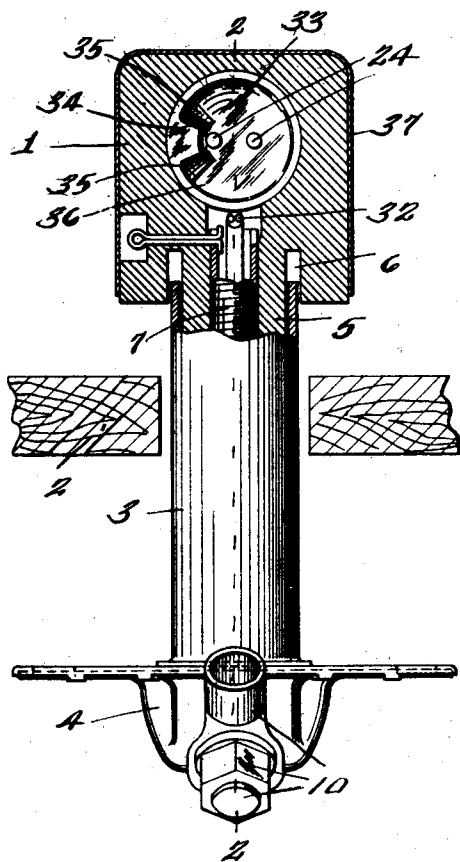


Fig. 1.

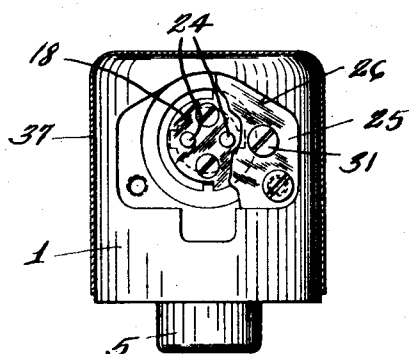


Fig. 3.

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Fig. 5.

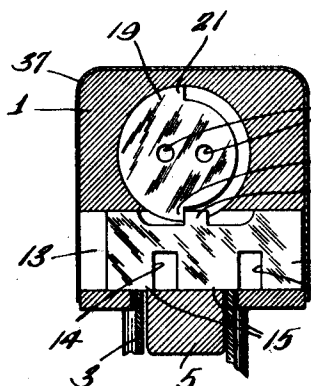
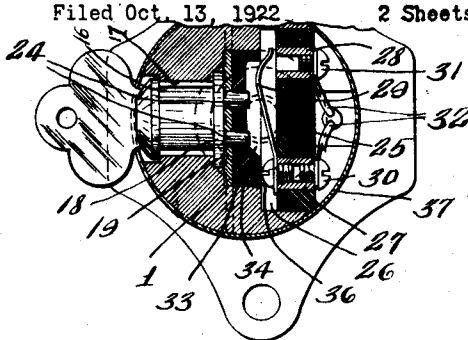


Fig. 4.

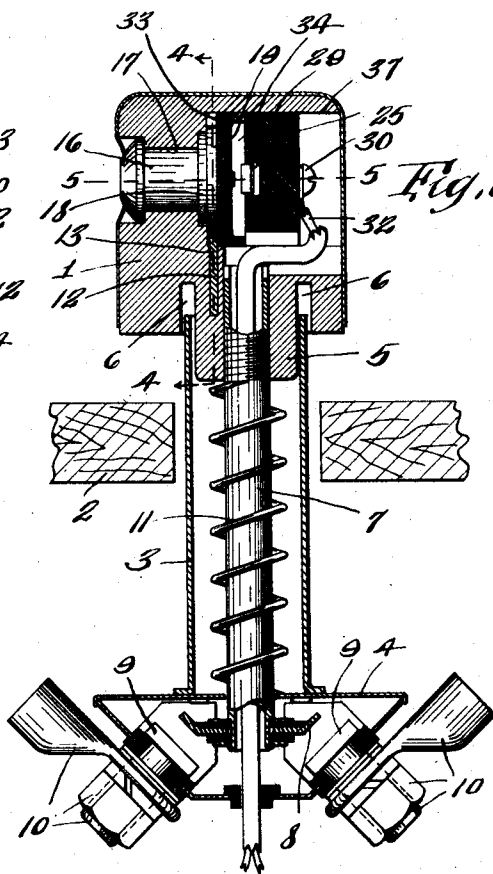


Fig. 2.

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UNITED STATES PATENT OFFICE.

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CONTROLLING MEANS FOR STARTERS FOR INTERNAL-COMBUSTION ENGINES.

Application filed October 13, 1922. Serial No. 594,249.

To all whom it may concern:

Be it known that I, WILLIAM METZROTH, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga and State of New York, have invented a certain new and useful Controlling Means for Starters for Internal-Combustion Engines, of which the following is a specification.

This invention relates to mechanism for controlling the starting of internal combustion engines and has for its object a particularly simple and compact arrangement of the ignition switch and the parts controlling the application of the power of the starting motor to the engine by which the switch and such parts can be locked by a single lock mechanism.

Other objects will appear throughout the specification.

In describing this invention, reference is had to the accompanying drawings, in which like characters designate corresponding parts in all the views.

Figure 1 is a vertical sectional view, partly in elevation, of this controlling mechanism for starting motors.

Figure 2 is a sectional view on line 2—2, Fig. 1.

Figure 3 is an elevation of the head or button, the casing therefor being shown in section.

Figure 4 is a sectional view on line 4—4, Fig. 2.

Figure 5 is a sectional view on line 5—5, Fig. 2.

This controlling mechanism comprises an operating member, a supporting or guiding member therefor, the operating member being movable relatively to the supporting member, and a lock carried by one of said members operable to hold the operating member from movement and hence prevent starting of the engine. It further includes an ignition switch, the closing of which is controlled by said lock.

1 designates the operating member which is here illustrated as a reciprocally movable head or button located near the floor 2 of the motor vehicle in position to be depressed by the pressing of the foot thereon.

3 is the support or guide for the operating member 1, it being here shown as a tubular post extending through the floor 2. This post is fixed to any suitable part of the engine, or the car body in any well-known

manner and carries a housing 4 at its lower end; here shown as enclosing a switch, and supporting terminals which are connected to the battery and to the motor respectively.

The head or button 1 is mounted on the outer or upper end of the post and is formed with a stem 5 extending into the post and with an annular recess 6 for receiving and housing the end of the post. The stem 5 is provided with a tubular extension 7 extending through the post, and carrying a switch arm 8 at its lower end, which arm 8 moves into and out of contact with the terminals 9 carrying the housing 5, these terminals having binding devices 10 for the wires leading from the battery and to the motor. A coiled spring 11 is inserted between the head and the casing 4 and within the guide or post 3, the spring serving to hold the head 1 elevated and the switch arm 8 separated from the terminals 9, and also to return the head 1 and parts carried thereby, to their initial position after being operated. The extension 7 merely serves to transmit the movement of the head 1, and it is immaterial whether it operates a switch arm or mechanically shifts a pinion driven by the motor into and out of mesh with a gear associated with the engine to be started.

In this embodiment of my invention, the lock is carried by the head 1, and comprises a bolt 12, and key-operated mechanism for actuating the bolt. The bolt is slidable in a transverse passage 13 in the head 1, transversely of the recess 6, the bolt having passages or slots 14 arranged to be brought into registration with the walls of the tubular guide 3 to permit the operation of the head 1, and full portions 15 arranged to overlie the end of the guide 3 and hold the head from being depressed. The key-actuated mechanism may be of any suitable form, size and construction and is located in a casing 16 mounted in a transverse recess 17, formed in the head above the passage 13 and arranged at a right angle thereto. This mechanism comprises a rotating part or a part 18 movable about an axis when the proper key is used. The construction of the lock per se forms no part of my invention. The motion is transmitted from the part 18 to the bolt 12 by means here shown as a disk or wheel 19 mounted on the part 18 to rotate therewith and having a pair of shoulders 20, 21, for engaging a lug 22 on the bolt. When the wheel is rotated in

one direction, as to the left, Fig. 4, the shoulder 20 engages the lug 22 and moves the bolt so that it obstructs the recess 6 to the entrance of the post 3, and when said wheel 5 is moved in the opposite direction the shoulder 21 engages the lug 22, and shifts the bolt 12 to aline the slots 14 with the recess 6 and the walls of the post.

The wheel 19 is shown as provided with two holes 23 for receiving studs 24 projecting from the end of the part 18.

25 is the base of an ignition switch, which base is located in a recess 26 opening through the opposite side of the head from that through which the recess 17 opens, the recess 17 opening at its inner end through the bottom of the recess 26.

27 and 28 are terminals on the inner face of the base 25. 29 is a switch arm mounted on one terminal as 27, and movable into and out of engagement with the other terminal 28. This switch 29 is a leaf spring tensioned to hold itself away from the terminal 28. The terminals 27, 28, are provided with binding devices 30, 31, on the outer face of the block, and the wires 32 of the ignition circuit, which are connected to said binding devices extending through the hollow stem 7.

The switch arm 29 is operated by the part 18 of the key mechanism, and as here shown, a cam in the form of a disk 33 is mounted on the studs 24 adjacent the wheel 19. The cam is formed with a notch or recess 34 arranged to receive the spring switch arm 29 and permit it to separate from the terminal 28 when the bolt 12 is in locked position, Fig. 4, and with an inclined portion 35 at one side of the notch for forcing the spring arm onto the face or high surface 36 of the cam and engage the terminal 28 when the part 18 is turned to shift the bolt into unlocked position.

The head 1 is enclosed in a casing 37 which cover the ends of all the transverse recesses, except the outer end of the recess 17 in which the key mechanism 16 is located.

In operation, when the motor vehicle, provided with my controlling mechanism, is parked, or left without an attendant, the operator turns the key of the mechanism in the casing 16 to turn the part 18 and the member or wheel 19 to shift the bolt into locked position, so that the head 1 cannot be depressed. The turning of the member 18 also turns the cam 33 so that its notch 34 receives the ignition switch arm 29, and breaks the ignition circuit. To start the engine, the part 18 is turned by the key moving the bolt 12 to unlocked position to permit the head 1 to be depressed, and moving the ignition switch arm 29 to close the ignition circuit.

What I claim is:

1. In a controlling mechanism for electric

starters for internal combustion engines, the combination of a shiftable operating member and a starting switch operable thereby, an ignition switch in said shiftable operating member, a lock comprising a part operable to hold the operating member from movement, and key operated mechanism connected to said part and to the ignition switch to operate the same.

2. In a controlling mechanism for starters for internal combustion engines, the combination of a reciprocally movable head, a starting switch operated by said head, and an ignition switch within the head, a support for the head, a lock carried by the head, including a part operable to hold the head from movement relatively to its support, and for operating the ignition switch and key operated mechanism for operating said parts.

3. In a controlling mechanism for starters for internal combustion engines, the combination of a reciprocally movable head, an electric switch carried by the head, a support for the head, key-operated lock mechanism located in the head including a member movable about an axis, and a part operable to hold the head from movement relatively to its support, and elements rotatable with said member to actuate said part and operate the switch, substantially as and for the purpose described.

4. In a controlling mechanism for starters for internal combustion engines, the combination of a tubular support, a reciprocally movable head having a stem movable in the support, means operated by the stem, the head having a recess for receiving and housing the contiguous end of the support, and a passage extending transversely through the recess, an electric switch within the head, a bolt movable in the transverse recess and having passages movable into and out of alinement with the end of the support, a key-operated mechanism in the head including a part movable about an axis and operating parts for the bolt and the switch mounted on the former part and movable with the same, substantially as and for the purpose specified.

5. In a controlling mechanism for starters for internal combustion engines, a tubular support, a head reciprocally movable relatively to said support, and having a hollow stem extending into the support, an ignition switch located in the head, and line wire leading to and from the switch, said wires extending through the hollow stem, substantially as and for the purpose described.

In testimony whereof, I have hereunto signed my name, at Syracuse, in the county of Onondaga, and State of New York, this 9th day of October, 1922.

WILLIAM METZROTH.