L. KOVACS.

MAGNETIC STARTING SWITCH.

APPLICATION FILED SEPT. 10, 1917.

1,310,353.

Patented July 15, 1919.

2 SHEETS—SHEET 1.

Fig. 2.

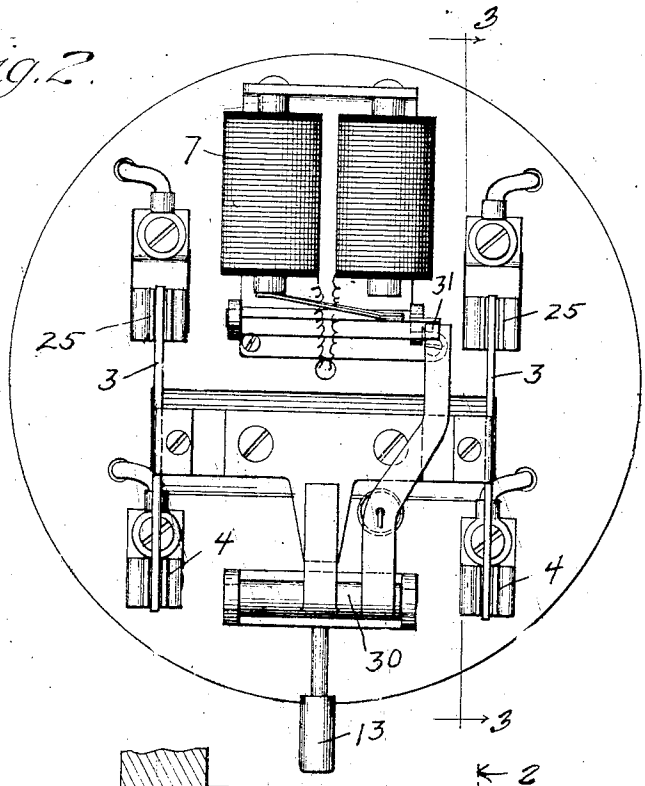
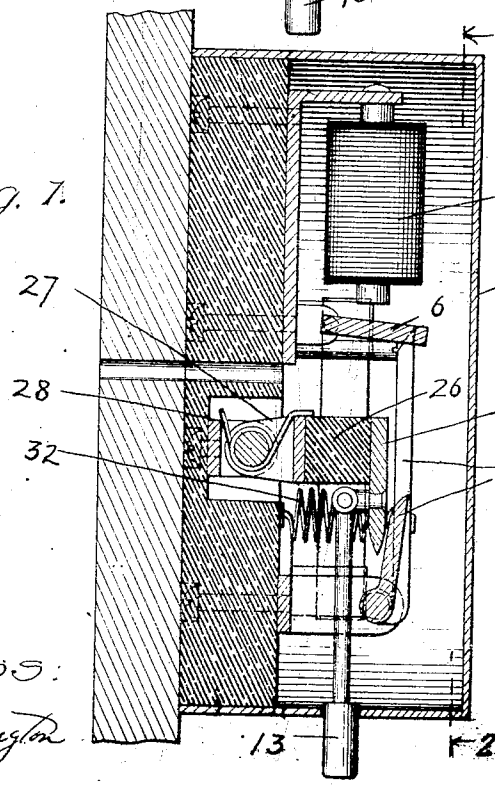


Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 4.

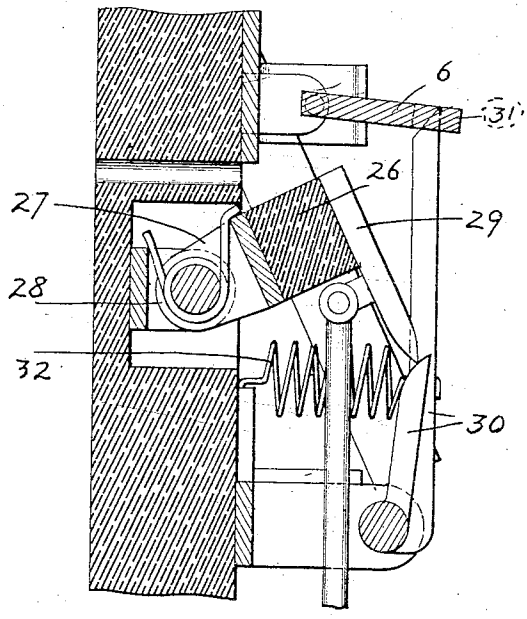


Fig. 3.

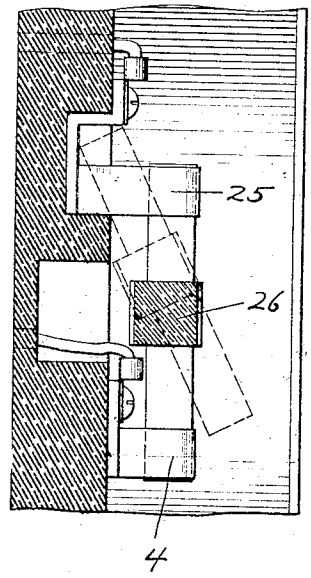
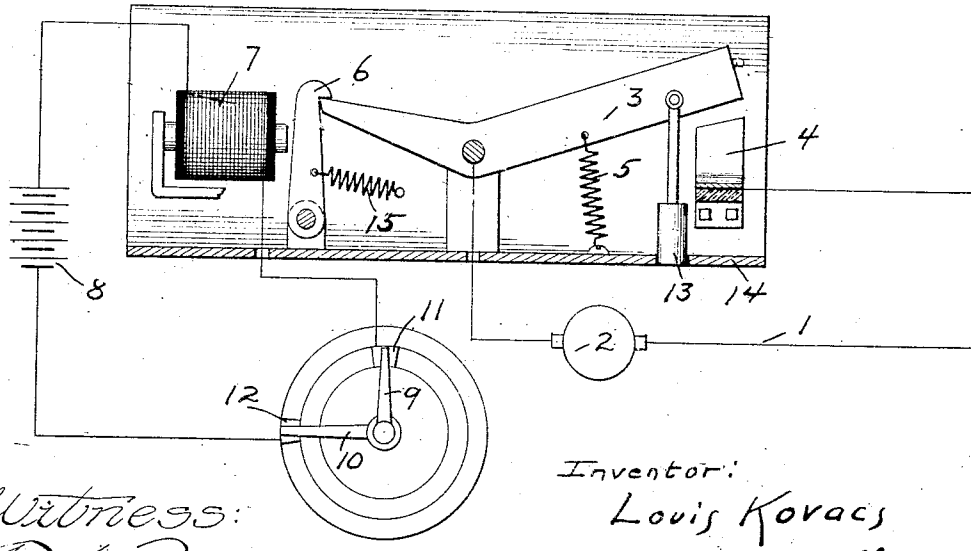


Fig. 5.



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UNITED STATES PATENT OFFICE.

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MAGNETIC STARTING-SWITCH.

1,310,353. Specification of Letters Patent. Patented July 15, 1919.

Application filed September 10, 1917. Serial No. 190,463.

To all whom it may concern:

Be it known that I, LOUIS KOVACS, a citizen of Austria-Hungary, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Magnetic Starting-Switches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

In its general aspects, my invention relates to switching mechanisms for controlling electric circuits, its objects being to provide a control mechanism requiring an electric current for actuating the same in one direction and having the connections for this required electric current so arranged as to be readily operated only by an initiated person. More particularly, my invention aims to provide an electric switch which can readily be opened manually, but which can only be closed by electromagnetic means; and to inclose the mechanism so as to prevent access to the electromagnetic means. Furthermore, my invention aims to provide a control switch adapted for use with ignition circuits or other circuits on an automobile, and one which can easily be adapted for currents of any desired amperage. Still other objects will appear from the following specification and from the accompanying drawings, in which drawings—

Figure 1 is an enlarged central vertical section through the casing housing the main portion of a switch mechanism embodying my invention, taken with the switch in its closed position.

Fig. 2 is a vertical section taken through Fig. 1 along the line 2—2.

Fig. 3 is a fragmentary section through Fig. 2 along the line 3—3.

Fig. 4 is a fragmentary view similar to a portion of Fig. 1 but enlarged and showing the switching member in its circuit-opening position.

Fig. 5 is a partially diagrammatic view of a simplified switching mechanism also embodying essential features of my invention.

Referring first to the diagrammatic view of Fig. 5, this shows an automobile ignition circuit 1 leading from a magneto or other generator 2 through a pivotally mounted switch blade 3 to switch clips 4. The switch blade 3 is continuously urged toward its circuit-closing position by a spring 5, but may be held in its open or off position by a pivoted and spring-pressed latch 6. This latch may be released by an electro-magnet 7 when the latter is actuated by current from a battery 8, the battery circuit being closed through the magnet when two separately pivoted arms 9 and 10 are respectively in contact with two concealed wire terminals 11 and 12.

The electromagnet and the switching mechanism above described is desirably concealed in a casing 14, of which only a portion is shown in Fig. 5, which casing normally prevents access to the various portions of the mechanism. However, this casing has an opening through which access may be had for moving the switch blade 3 in one direction only. For example, the blade 3 in Fig. 5 is shown as pivoted to a link carrying a pushbutton 13, which button has its outer end flush with the outer surface of the casing 14 when the switch is latched in its open position. With the switch blade thus latched, and with the casing 14 screening the pawl 6 from access, it will be evident from Fig. 5 that the switch can be closed only by actuating the electromagnet 7 and hence retracting the pawl 6 against the pressure of a spring 15, whereupon the spring 5 will close the switch.

To insure ample carrying capacity and a firm closing of the switch, I desirably avoid the pivotal electrical connection implied by the simplified embodiment of Fig. 5 and use a switch blade 3 (Fig. 1, 3 and 4) sliding between one pair of contact clips 25 and adapted to slip between or away from the other clips 4. This blade I mount on an insulator 26 carried by a pivoted arm 27, which arm is continuously urged in one direction by a coiled spring 28. The insulator 26 also carries a plate 29 having a relatively sharp edge adapted to engage the curved shorter end of a forked latching member 30, when the switch is in its open position as shown in Fig. 4. The other end of the latching member 30 is formed for hooking under a lug 31 (Fig. 2.) on the detent 6 which may be released by the electromagnet 7. The forked member 30 when thus latched by the detent, holds its shorter end in the path of the sharp edged plate 29, thereby preventing the spring 28 from rocking the arm 27 and moving the switch blade to its closure position. However, when the detent 6 is mag-

netically released, the latching member is free to rock slightly in a clockwise direction, against the tension of the spring 32, thereby permitting the plate 29 to slide under and raise this member 30 and allowing the spring 28 to close the knife switch. It will be obvious that by providing the plate 29 and the shorter end of the swinging latch arm 30 with coöperating cam surfaces, I readily enable the plate 29 to raise the latch arm momentarily, leaving the spring 32 to return the same.

However, while I have shown and described particular forms of latching members, springs and the like, I do not wish to be limited to these or other details of the construction and arrangement here disclosed, it being obvious that the same might be varied in many respects without departing from the spirit of my invention.

I claim as my invention:

1. In combination, an electric switch, manually operable mechanical means for moving the switch from the first to the second of two normal positions, a latch for holding the switch in said second position, spring means for returning the switch to the first position, electrically controlled means for releasing the latch, and a casing housing the foresaid elements and exposing only a portion of the manually operable means so as to permit the manual actuating of the latter in one direction only, the manually operable means including an element projecting beyond the surface of the casing only when the switch is in its first named position.

2. In combination, an electric switch, manually operable mechanical means for moving the switch from the first to the second of two normal positions, a latch for holding the switch in said second position, spring means for returning the switch to the first position, electrically controlled means for releasing the latch, and a casing housing the aforesaid elements and exposing only a portion of the manually operable means so as to permit the manual actuating of the latter in one direction only, the manually operable means including a rigid link pivoted to the switch presenting an end portion projecting beyond the surface of the casing only when the switch is its first named position.

3. In an electric switch, a movable switching member, a pivoted detent engaging the switching member for holding the latter in one position, a latch engaging the detent to hold the latter in its said position, and yielding means also arranged for holding the detent in its said position, the detent and the portion of the switching member engaged thereby having coöperating cam formations for causing the switching member first to be moved further from its said position against the resistance of the yielding member upon the releasing of the detent, thereby permitting the detent to clear the said portion of the switching member.

4. In an electrically releasable switch, a movable switching member, a spring continuously tending to move said member into a circuit-closing position, manually operable means for moving the switching member to a position in which it opens the circuit, a spring pressed latch arranged for holding the switching member in the last named position, a movable detent for the latch, electrically operated means for disengaging the detent, and a casing housing the said elements and having a perforation, the manually operable means including a push-button connected to the switching member and projecting through the perforation in the casing only when the switch is in its closed position, the pushbutton being guarded by the casing against manual retraction thereof when the switch is in its open position.

5. A switch mechanism as per claim 6, in which the last named means include a push-button jointedly connected to the switching member and projecting through a perforation in the casing when the switch is in its circuit-closing position, the said pushbutton being of such dimensions as to be substantially flush with the surface of the casing and manually incapable of being grasped from without the casing when the switch is in its circuit-opening position.

6. In an electric switch, a movable switching member, manually operable means for moving the switching member from one to another of two normal positions, a detent engaging the switching member for holding in the latter of its two positions, spring means for returning the switching member to its other position, and electrically controlled means for releasing the detent, the detent and the portion of the switching member engaged thereby having coöperating cam formations for causing the switching member first to be moved farther from its last named position upon the releasing of the detent, thereby permitting the detent to clear the said portion of the switching member.

Signed at Chicago, Illinois, September 6th, 1917.

LOUIS KOVACS.