

July 27, 1926.

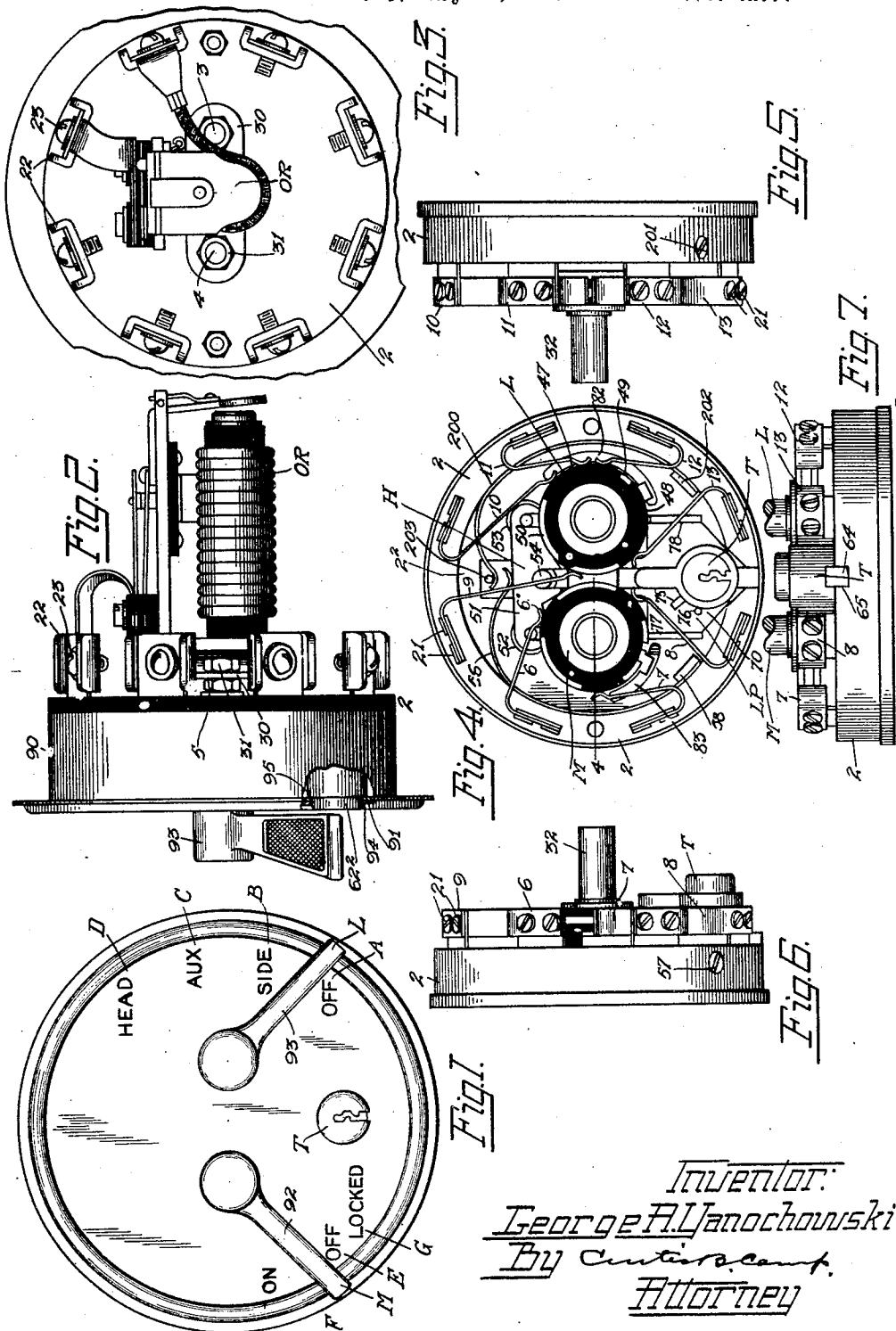
1,593,742

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LIGHTING AND IGNITION SWITCH

Filed May 21, 1923

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

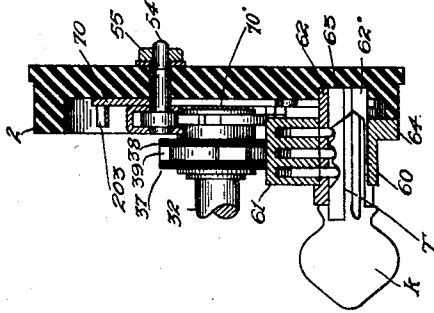


Fig. 10.

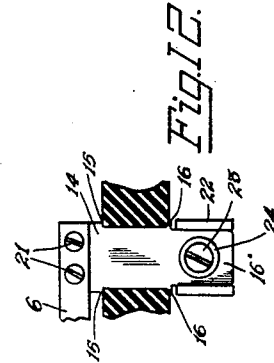


Fig. 12.

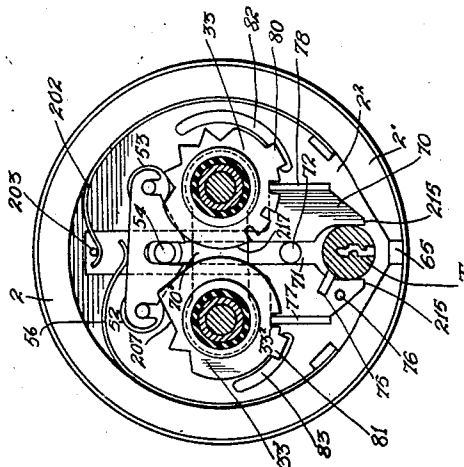


Fig. 5

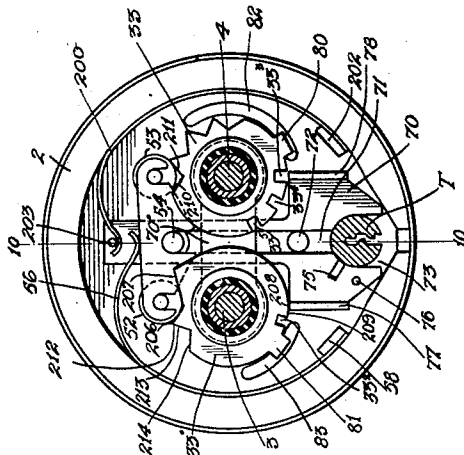
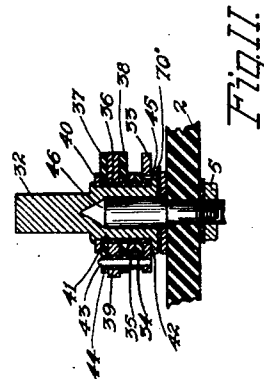


Fig. 8.



File

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UNITED STATES PATENT OFFICE.

GEORGE A. YANOSCHOWSKI, OF LA GRANGE, ILLINOIS, ASSIGNOR TO KELLOGG SWITCH-BOARD AND SUPPLY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

LIGHTING AND IGNITION SWITCH.

Application filed May 21, 1923. Serial No. 640,312.

My invention relates to electrical switches in general and has to do more particularly with so called combination lighting and ignition switches as are used on automobiles or the like. The switch of my invention is used for controlling the lighting and ignition circuits of an automobile, and an object of my invention is to produce a device of the above character which contains novel features of construction and combination of parts, all of which produce a single, efficient and economical switch structure.

A feature of my invention is the provision of a lock of the pin-tumbler, cylinder type, in association with a slidable locking plate for locking the ignition unit and lighting unit of my switch against actuation. The lighting switch unit of my invention has several operative positions and may be locked in any one of its operative positions except one of its operative positions while the ignition switch unit of my switch has a "locked" position, an "off" position, and an "on" or ignition position and can only be locked against actuation when it is in its "locked" position. I have provided spring means and have so constructed and arranged the ignition switch unit so that when the said ignition switch unit is in its "off" position, the slidable locking plate associated with the spring means, tumbler lock and switch units, will be in its unlocked position so that when the ignition switch unit is moved to its locked position, the spring means will cause the locking plate to automatically move to its locked position where it will engage the switch units of my switch and lock the same in position against actuation. The locking plate will remain in its locked position until the cylinder of the tumbler lock is rotated to cause a pin, secured to said cylinder, to engage a pin on the locking plate, whereupon further rotation of the said cylinder will move the locking plate, due to the engagement of said pins, out of its unlocked position, and when the locking plate is moved from its locked position to its unlocked position, the ignition switch will, by pressure exerted upon it, automatically move and rest in its "off" position and when in its "off" position, is free to move to its "on" or ignition position with-

out locking, but when moved to its "locked" position it will again be automatically locked in its "locked" position and will remain in its "locked" position until the cylinder of the tumbler is again actuated to move the locking plate out of its locked position whereupon the ignition switch unit will again automatically assume its "off" position.

The above feature, as well as others, consist in the novel details of construction and combination of parts hereinafter more particularly pointed out in the ensuing specifications and in the appended claims.

For a more complete understanding of my invention, reference may be had to the accompanying drawings, in which like reference characters, in the several views, denote like parts, and in which—

Fig. 1 is a face view of my invention;

Fig. 2 is a right side view of Fig. 1;

Fig. 3 is a rear view of Fig. 1;

Fig. 4 is an interior face view of the switch mechanism, the cap of the switch being removed;

Fig. 5 is a right side view of Fig. 4;

Fig. 6 is a left side view of Fig. 4;

Fig. 7 is a bottom view of Fig. 4;

Fig. 8 is an interior face view with parts of the apparatus omitted to more clearly show the locking arrangement, the slidable locking plate and switch units being in their unlocked positions.

Fig. 9 is a view similar to Fig. 8 but showing the locking plate and switch units in their locked positions.

Fig. 10 is a sectional view along the line 10—10 of Fig. 8; and also showing the operating key in the cylinder of the tumbler lock.

Fig. 11 is a sectional view along the line 4—4 of Fig. 4, illustrating the construction of the rotor element of one of the switch units.

Fig. 12, is a view showing the manner in which the stationary contact members of my switch are secured to the switch structure.

Referring now in general to my invention as illustrated, it comprises a lighting switch unit L and an ignition switch unit M. The lighting switch unit L has a normal or "off"

position A, and three operative positions B, C and D. In position B the side lights of the automobile lighting system are connected in circuit; in position C the auxiliary lights are connected in circuit; and in position D the head lights are connected in circuit: but I do not wish to be limited to this particular arrangement, as different combinations can be used without departing from the invention.

The ignition switch unit M has a normal or "off" position E and an "on" or operative position F, and a locked position G, in which position G the ignition apparatus is rendered inoperative, as will be more fully hereinafter described. I also provide locking mechanism which consists preferably of a standard pin-tumbler, cylinder type, lock T, which controls a sliding locking plate LP, which is adapted to lock the lighting and ignition switch units L and M against actuation. The locking mechanism is so arranged that it operates only when the ignition switch unit M is in its locked position G, but will operate to lock the lighting switch unit L in its positions A, B and C; but when in position D the locking plate LP cannot be operated. When the ignition switch unit M is in its position F, or in its position E the locking plate LP cannot be moved to its locked position but can only be moved to its locked position when the switch unit M is in its position G as will be pointed out later.

Referring now more in detail to my invention as illustrated, it comprises, preferably, a mounting plate 2 made of any suitable insulating material, such as bakelite, and having studs 3 and 4 fastened to it in any suitable manner, as by means of the nuts 5, which nuts 5 have screw-threaded engagement with the threaded portions of the studs 3 and 4, which extend beyond the rear face of the plate 2. The plate 2 is provided with a peripheral ridge 2', extending upwardly from the plate proper. The plate is also provided with a flange upon which the cover cap of the device rests. The stud 3 is provided for the ignition switch unit M and the stud 4 is provided for the lighting switch unit L. Springs 6, 7 and 8 are associated with the ignition switch unit M, and springs 9, 10, 11, 12 and 13 are associated with the lighting switch unit L. Springs 6, 7, 8, 9, etc., are similarly constructed so that, by describing one of them, the construction of the others is readily apparent, and for this purpose spring 6 will be described. A tongue 14 of suitable material is provided with shoulders 15 and is adapted to be forced into a suitable opening in the plate 2 until the shoulders 15 engage the face of the plate 2, which opening is slightly smaller than the tongue 14, to provide a force fit; and when the tongue 14 is

in place, portions 16 of said tongue 14 are turned over to engage the plate 2 to retain the tongue 14 in position. The spring 6 is formed out of spring metal and is provided with suitable openings in its one end, through which screws 21 pass, the said screws 21 having screw-threaded engagement with suitable tapped openings in the tongue 14, said screws 21 securing the said spring 6 to the tongue 14 against displacement.

The free end 6' of the spring 6 is provided with a rounded or curved end portion which forms a contacting end which engages its associated switch unit. The portion 16' of the tongue 14 which extends beyond the bottom surface of the plate 2 forms a connecting terminal for the spring 6 and is provided with a saddle or clamping member 22, which provides means for securing an electrical conductor to the tongue 14. Screws 23 are provided with washers 24, which screws 23 have screw-threaded engagement with the clamping members 22 for securely holding the electrical conductor between one side of the tongue 14 of its associated spring 6 and the said clamping member 22.

Associated with the combination ignition switch as illustrated, I show an overload relay OR, which is used for purposes well understood. The relay OR is secured to the supporting plate 30 in any suitable manner, and said plate 30 is in turn secured to the studs 3 and 4 by means of the nuts 31, which nuts 31 have screw-threaded engagement with the treaded portions of the studs 3 and 4.

The lighting switch unit L and the ignition switch unit M are each provided with a rotor element, and as both are similar in construction, a description of one of them will suffice. The rotor element associated with the lighting switch unit L comprises a supporting stud 32, a holding disk 33 for holding the lighting switch unit L in its different positions, as will be more fully hereinafter described, washers 34 and 35, a sleeve 36 of suitable insulation material, cams 37 and 38 of suitable insulation material, a cam 39 of suitable conducting material and a washer 40, which members are all supported upon the stud 32. The disk 33 is provided with an orifice of a size to permit its being slipped over the body portion 41 of the stud 32, and when the said member 33 is in place, it rests against the shoulder portion 42 of the stud 32. The insulation sleeve 36 is provided with an orifice of a size to permit its being slipped over the body portion 41 of the stud 32, the said sleeve 36, when in place, resting against the member 33. Washers 34 and 35 are provided with orifices of a size to permit their being slipped over the insulation sleeve 36, and

the cams 37 and 38, which are of suitable insulation material, are also provided with orifices of a size to permit their being slipped over the insulation sleeve 36. The metallic cam 39 is also provided with an orifice of a size to permit its being slipped over the sleeve 36. The cam 39, when in place, rests between the two insulation cams 37 and 38. The washer 40 is also provided with an orifice of a size to permit its being slipped over the body portion 41 of the stud 32, and when the member 33, washers 34 and 35, cams 37, 38 and 39 and washer 40 are in place, a portion of the body 41 of the stud 32 protrudes slightly beyond washer 40, and this portion is upset or spun over, securing the said members upon stud 32 against displacement. To prevent the members 33, 34, 35, 37, 38, 39 and 40 from rotating about the stud 32, I provide a pin 43, which is secured to the member 33, the said pin 43 extending through the members 37, 38 and 39 but insulated from the said member 39 by means of a sleeve of insulation 44 through which the said pin 43 extends. The member 33 is also secured to the stud 32 by means of a pin 45, the said pin 45 passing through the member 33 and the shoulder portion 42 of the stud 32. The stud 32 is also provided with a central opening 46 of a size to receive the supporting stud 4 of the lighting switch unit L, to permit the rotation of said lighting switch unit rotor. The insulation cams 37 and 38 are provided with wing portions 47 and 48, and the metallic member 39 is provided with wing portions 49 and 50, which wings cooperate with the free ends of the springs, 9, 10, 11, 12 and 13, when the lighting switch unit L is moved to its several positions, as is readily understood.

The holding member 33 is in the form of a notch or toothed disk, and to cooperate with the disks 33 and 33' to yieldingly hold the lighting and ignition switch units L and M, respectively, in any of their operated positions, I provide a holding device H which comprises a centrally pivoted member 51, which carries rotatable rollers 52 and 53 in its bifurcated ends, said rollers 52 and 53 operating in connecting with their corresponding disks 33' and 33 of the ignition switch unit M and the lighting switch unit L. The member 51 is pivotally supported at its center by a stud 54, which is suitably fastened to the mounting plate 2 by means of a nut 55, which nut 55 has screw-threaded engagement with the threaded end portion of the stud 54. A spring 56 for yieldingly holding member H against the disks 33 and 33' of the switch units L and M, is provided. The free end of the spring 56 rests against the bridge of the member H, the other end of the spring 56 being fastened to the mounting plate 2 by means of a screw 57 and nut

58. When one of the switch members is operated, the teeth of its disk are rotated against its associated roller, due to the action of the spring 56, and as the disc 33 advances the roller acts upon the next toothed notch so as to give a snap action to the switch member and at the same time hold the actuating members of the switch in place.

A locking arrangement is provided whereby the lighting and ignition switch units L and M may be locked in their different positions. I, therefore, provide a pin-tumbler, cylinder lock T cooperating with a sliding locking plate LP. The cylinder lock comprises the usual lock casing 60, which lock casing is provided with the usual tumbler extension 61, and rotatably mounted in the casing 60 is the key barrel or cylinder 62. The key barrel extends rearwardly from the casing 60, and this rearwardly extending portion 62' rests in a pocket or depression 63 in the mounting plate 2. The lock casing 60 is also provided with a square lug 64, preferably integrally formed therewith, the said lug 64 resting in a slot 65 cut in the ring portion 2' of the mounting plate 2, which ring portion 2' is formed by the inner circumferential edge of the cup-shaped portion 2" of the plate 2 and the outer circumferential edge of the plate 2. The lock barrel 62 resting in the pocket 63, which forms a seat for the said barrel 62, in conjunction with lug 64, which rests in the slot 65, centers said lock and prevents rotation of the same in the pocket 63 when the key of the lock is turned. The sliding locking plate LP, which is provided for locking the switching units L and M so that they cannot be operated, consists of a plate 70 provided with an elongated slot 71, through which the stud 54 and pin 72 extend, said stud 54 and pin 72 serving as guiding means for the locking plate LP. The plate 70 is also provided with a U-shaped notch 73 of a size to permit it to span the lock barrel 62 which rests in the pocket 63 in the mounting plate 2. The slot 71 and the U-shaped notch 73, in association with the stud 54 and pin 72 and the key barrel 62, form guiding means for the plate 70, when the said plate is moved to lock or unlock the switch units L and M, as the case may be. A flat spring member 70' is provided for holding the locking plate 70 against the mounting plate.

To move the plate 70 to its locked position, automatically, when the switch units L and M are in position for locking without necessitating the actuation of the key K and key barrel 62 of the tumbler lock T, a leaf spring 200 is provided which is secured to the mounting plate 2 by means of a screw 201 and nuts 202. The free end of the spring 200 is suitably shaped to engage a pin 203 secured to the end of the plate 70 and is adapted to exert a pull upon the plate

70 to cause said plate 70 to move in a longitudinal direction, due to the spring tension of said spring 200. The spring 200 and pin 203 serves to automatically move the plate 70 to its locked position to lock the switch units in position against actuation when the switch unit M is moved to its locked position as will be more fully hereinafter pointed out. The plate 70 is also provided with angular extensions 77 and 78, which extensions are preferably integrally formed with the said plate 70, the said extensions 77 and 78 cooperating with the disks 33' and 33 respectively of the switching units M and L. I have preferably arranged the ignition switch unit M so that it can only be locked in its locked position G, and I, therefore, provide a single slot 33² in the disk 33' while the disk 33 of the lighting switch unit L is provided with three slots 33³, 33⁴, and 35⁵, whereby the lighting switch unit L may be locked in its normal or two of its three operative positions. No slot is provided for the fourth operative position of the switch unit L, so that when the lighting switch unit L is in its position D and an attempt is made to lock the switch after the ignition switch unit M is restored to its inoperative or locked position G, the plate 70 will not move to lock said elements in position against actuation as will be pointed out later.

For moving the plate 70 from its locked position to its unlocked position to permit actuation of the switch units L and M I provide a pin 75, which is secured to the rearwardly extending portion 62' of the key barrel 62, the said pin 75 cooperating with a pin 76, which is secured to the sliding plate 70 in any suitable manner.

The disks 33 and 33' of the units L and M are provided with angular, downwardly extending arms 80 and 81, which extend into slots 82 and 83, respectively, which slots are cut in the mounting plate 2. The extremities of the respective slots 82 and 83 limit the movements of the switch units L and M in their normal and farthest advanced positions.

In Fig. 8 I have shown the locking mechanism and operating members of the lighting and ignition switch units L and M in their normal position and unlocked; and in Fig. 9 I show the locking mechanism operated to lock the switching units L and M against movement.

A cover or casing 90 is provided for enclosing the mechanism, and a top or name plate 91 is also provided, said cover 90 and name plate 91 being held together in any suitable manner and being provided with suitable openings to permit the passage of the studs 3 and 4. Handles 92 and 93 are secured to the studs 3 and 4 in any suitable manner, the said handles 92 and 93 being grasped by the operator to move the switch

units L and M to their different operative positions. The cover 90 and plate 91 are also provided with a suitable opening 94 of a size to permit the passage of the forward end or head 62² of the key barrel 62, this opening 94 also forming a bearing for the head 62² of the key barrel 62 when it is rotated by the key K.

From the above description, it will be seen that with the cylinder lock mounted with the rearwardly extending portion 62' of the barrel 62 resting in the pocket 63 and the lug 64 resting in the notch 65 and the barrel head 62² projecting through the opening 94 in the casing 90, the lock will be rigidly secured in place between the casing 90 and the mounting plate 2. The opening through which the head 62² of the key barrel 62 projects and the rear portion 62' of the barrel 62 which rests in the pocket 63 in the mounting plate 2 both serve as bearings for the barrel 62 when it is rotated by the key K, the said pocket 63 also seating the lock in position. The shoulder 95 formed by the barrel casing 60 abuts against the inner surface of the casing 90, preventing displacement of the lock in the pocket 63, and the lug 64 resting in the notch 65 prevents the lock from rotating as a whole when the key K is turned.

From the construction herein described, it will be apparent that it is unnecessary to rigidly secure the lock to any member of the switch or casing, because when the casing is secured to the plate 2 by means of the nuts 96 which have screw-threaded engagement with the threaded ends of the studs 97 secured to the cover 90, the lock will be clamped between the casing 90 and mounting plate 2.

Having described the construction and assemblage of the different parts of my invention to form a unitary switch structure, I will now describe the manner of operation of the locking mechanism of my invention. When the switch unit M is in the position shown in Fig. 8, the locking plate LP will be in its unlocked position and the wheel 52 will be resting between and engaging the chamfered edges 206 and 207 of the member 33' of switch unit M, and the end 208 of the angular extension 77 will abut, against the peripheral edge 209 of said member 33' due to the pressure exerted upon the plate LP by the leaf spring 200. The wheel 53 as shown in Figs. 8 and 9 will be engaging the chamfered edges 210 and 211 of member 33 of the switch unit L. The switch units M and L, as shown in Figs. 8 and 9, are each in their "off" position and are retained in this position against ordinary pressure, due to jarring, shaking, etc., by the engagement of the spring pressed wheels 52 and 53 with members 33' and 33 of said switch units M and L respectively. The pin 75 secured

to the key barrel 62 of the tumbler lock T is shown in the position in which it will be when the key *k* is removed from the said key barrel. The switch unit L may be moved to any of its operative positions, and when moving from one position to another the wheel 53 will ride over the apex of the tooth advancing toward the wheel 53 and will engage the next tooth, a snap action being produced, as is well known. The switch unit M may be moved to its "on" position and when moved to this position the wheel 52 will ride over the apex of the tooth 212 and will engage the chamfered edges 213 and 214 of member 33'; a snap action being produced, whereupon the switch unit M will be held in this position by the spring pressed wheel 52. The switch unit may now be moved to its "off" position, and switch unit L may be moved to any of its operative positions without affecting the locking plate LP. Should it be desired to lock the switch units M and L against actuation, and if the switch unit L is in any of its operative positions except position D, the same may be affected by moving the switch unit M to its "locked" position whereupon the notch 33² will be brought into alignment with the end of the angular extension 77 of plate 70 and the end of the angular extension 78 already being in alignment with one of the notches 33², 33⁴, and 33⁵ of switch unit L depending upon the position of the said switch unit L, the locking plate LP will move in a longitudinal direction due to the pressure exerted upon said plate LP by the leaf spring 200. The plate LP moving in a longitudinal direction towards the switch units L and M, the end portion of the angular extension 77 will engage the notch 33² and the end portion of the angular extension 78 will engage notch 33³ of switch unit L, if said switch unit L is in the position shown in Figs. 8 and 9, and due to such engagement said switch units L and M will be locked against actuation. When the switch unit M is in its locked position, the wheel 52 will engage and rest upon the extreme top portion of the chamfered edge 207 of member 33'. Now should it be desired to actuate the switch unit M or L or both, the operator will insert the key *k* into the key barrel of the tumbler lock T (if it is not already in the lock) and will turn it to the right to cause the pin 75 to engage the stud 76 whereupon continued turning, will cause the locking plate LP to move in a direction, against the tension of spring 200, to cause the angular extensions 77 and 78 of said plate LP to disengage the notches 33² 33³ in members 33' and 33 of switch units L and M respectively. When the angular extension 77 of plate LP has cleared itself from the notch 33² of switch unit M, said switch unit M will automatically move to its

"off" position due to the pressure exerted upon the switch unit M, by the spring pressed wheel 52 at the extreme top portion of the chamfered edge 207 and when the switch unit M has moved to its "off" position the wheel 52 will again engage the edge 206 of member 33' whereupon the pressure of the wheel 52 upon the switch unit M is equalized. The end portion of the angular extension 77 will now engage the peripheral edge 208 of member 33' as described above. The locking plate is now in its unlocked position and the switch units L and M are free to be actuated. The ends 215 of the plate LP are adapted to engage the plate 2 to limit the longitudinal movement of the said plate when moving to its unlocked position. The stud 54 and pin 72 serve to guide the locking plate in its longitudinal movement and also to retain it in position so that when the switch unit M is moved to its locked position the angular extensions 77 and 78 will be in alignment with the notches 33², 33³, etc. of switch units M and L. Should the switch unit L be in its "head" or D position and the switch unit M is moved to its locked position, the locking plate in this instance will not move to its locked position due to the fact that the end of the angular extension 78 of plate 70 will be engaging the peripheral edge 217 of member 33 which will prevent longitudinal movement of the said locking plate, and when the switch unit L is moved to any of its other positions and if switch unit M is in or turned to its locked position the locking plate will automatically move to lock the said switch units against actuation.

From the foregoing it is at once obvious that I have provided a switch which has locking mechanism for locking the switch units of my switch in position against actuation, and that in order to move the locking mechanism to its locking position all that is necessary is to move the ignition switch unit to its locked position, whereupon the locking mechanism will operate automatically to lock the switch units against actuation. To unlock the switch units, all that is necessary is to insert the operating key into the lock and turn the same in the proper direction, whereupon the locking mechanism will be caused to move to its unlocked position, and the ignition switch unit will automatically assume its normal "off" position, and the locking mechanism will be retained in its unlocked position by the ignition switch unit M, and if the lighting switch unit L is in its position D, said switch unit L will also serve to retain the locking mechanism in its unlocked position.

While I have shown and described a preferred embodiment of my invention it is to be understood that I do not wish to be limited to the exact structure as shown and de-

scribed, but intend to cover all changes and modifications, which may come within the spirit and scope of the appended claims.

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

1. In a device of the character described, a mounting plate, a rotor element rotatably supported on said mounting plate having a "locked" and an "off" position, a locking element for locking said rotor element against actuation, springs means for moving said locking element to its locked position, a tumbler lock mechanism for moving said locking element to its unlocked position and means associated with said rotor element to cause said rotor element to assume its "off" position when said locking element is moved to its unlocked position.

2. In a device of the character described, a mounting member, rotor elements rotatably supported upon said mounting member and adapted to assume different positions, a locking element for locking said rotor elements against actuation, a "locked" and an "off" position for one of said elements, means for automatically moving said locking element to its locked position to lock said rotor elements, when said one of said rotor elements is actuated to move to its locked position, a locking member operable to move said locking element to its unlocked position, and means associated with said one of said rotor elements to cause it to assume its "off" position when said locking element is moved to its unlocked position.

3. In a device of the class described, a mounting member, rotor elements rotatably supported on said mounting member and adapted to be rotated to different positions, spring pressed means for maintaining said rotor elements in their different positions, a locking element supported upon said mounting member for locking said rotor elements in position against actuation, means for automatically moving said locking element to its locking position when said rotor elements are rotated to certain positions, and key controlled means for moving said locking element to its unlocking position to permit automatic rotation of one of said rotor elements under the influence of said spring pressed means.

4. In a device of the class described, a mounting member, a rotor element rotatably supported upon said mounting member, said rotor element adapted to be actuated to assume different positions and spring pressed means for maintaining said rotor element in its different positions, a locking element for locking said rotor element against actuation, means for automatically causing said locking element to lock said rotor element in position when said rotor element is moved to one of its positions, said spring pressed

means causing automatic movement of said rotor element when said locking element is unlocked.

5. In a device of the class described, a mounting member, a rotor element rotatably supported upon said mounting member, said rotor element adapted to be actuated to assume different positions and spring pressed means for maintaining said rotor element in its different positions, a locking element for locking said rotor element against actuation, means for automatically causing said locking element to lock said rotor element in position when said rotor element is moved to one of its positions, and means for causing said locking element to unlock said rotor element to cause said spring pressed means to automatically actuate said rotor element.

6. In a device of the class described, a rotor contact element adapted to be actuated to an "on," an "off," and a "locked" position, a locking element for locking said rotor contact element in its "locked" position, means for automatically actuating said locking element to its locking position when said rotor contact element is moved to its "locked" position, and automatic means controlled by said locking element for moving said rotor element to its off position when said locking element is moved to unlocked position.

7. In a device of the class described, a rotor contact element adapted to be actuated to an "on," an "off," and a "locked" position and spring controlled means for maintaining said rotor contact element in its "on" or "off" position, a locking element for locking said rotor contact element in its "locked" position, means for automatically actuating said locking element to its locking position when said rotor contact element is moved to its "locked" position, and key controlled means for actuating said locking element to its unlocking position to cause said spring means to automatically rotate said rotor contact element.

8. In a device of the class described, a rotor contact element adapted to be actuated to an "on," an "off," and a "locked" position, a locking element for locking said rotor contact element in its "locked" position, means for automatically actuating said locking element to its locking position when said rotor contact element is moved to its "locked" position, and key controlled means for actuating said locking element to its unlocking position to permit rotation of said rotor contact element, and means for causing said rotor contact element to automatically assume its "off" position when said locking element is moved from its locking position to its unlocking position.

9. A switch of the character described, including stationary contacts, a rotor contact element for closing circuits through said

stationary contacts, said rotor contact element having an "on" position, an "off" position, and a "locked" position, a locking member for locking said rotor contact element in its "locked" position, means controlled by said rotor contact element for automatically actuating said locking member to its locking position, key controlled means for actuating said locking member to its unlocking position to unlock said rotor contact element, and spring means for moving said rotor contact element when it is unlocked.

10. A switch of the character described, including stationary contacts, a rotor contact element for closing circuits through said stationary contacts, said rotor contact element having an "on" position, an "off" position, and a "locked" position, a locking member for locking said rotor contact element in its "locked" position, means controlled by said rotor contact element for automatically actuating said locking member to its locking position, key controlled means for actuating said locking member to its unlocking position, and means for automatically moving said rotor contact element to its "off" position, when said rotor contact element is released from its "locked" position.

11. A switch of the class described, including a pair of rotor elements, a locking member for locking said rotor elements against actuation, means for automatically causing said locking member to lock said rotor elements against rotation, when said rotor elements are rotated to certain positions, key controlled means for unlocking said rotor elements, and automatic means for moving one of said rotor elements when said locking member is moved to its unlocked position.

12. A switch of the class described, including a pair of rotor elements, one of said rotor elements having "off," "side" "aux" and "head" positions, the other of said rotor elements having "locked," "off" and "on" positions, means for locking said rotor elements against rotation, means for automatically causing said locking means to lock said rotor elements against rotation, when said one of said rotor elements is in any one of its "off," "side" or "aux" positions and said other rotor element is moved to its locked position, and automatic means for

moving one of said rotor elements when said locking element is moved to its unlocked position.

13. A switch of the class described, including a pair of rotor elements, one of said rotor elements having "off," "side" "aux" and "head" positions, the other of said rotor elements having "locked," "off" and "on" positions, means for locking said rotor elements against rotation, means for automatically causing said locking means to lock said rotor elements against rotation, when said one of said rotor elements is in any one of its "off," "side," or "aux" positions and said other rotor element is moved to its locked position, means for actuating said locking means to unlock said rotor elements, and automatic means for actuating one of said rotor elements when said locking means is moved to unlock said rotor elements.

14. A switch of the class described, including a pair of rotor elements, one of said rotor elements having "off," "side," "aux" and "head" positions, the other of said rotor elements having "locked," "off" and "on" positions, means for locking said rotor elements against rotation, means for automatically causing said locking means to lock said rotor elements against rotation, when said one of said rotor elements is in any one of its "off," "side" or "aux" positions and said other rotor element is moved to its "locked" position, means for actuating said locking means to unlock said rotor elements, and means for causing said other rotor element to assume one of its rotatable positions upon being unlocked, while said one rotor element remains in the same position.

15. A device of the character described including a rotary switch element having a plurality of positions, a spring actuated member for automatically locking said switch element when it is moved to one of its positions, a key controlled member for unlocking said switch element, and automatic means for moving said switch element from its locked position to another of its positions when said key controlled member is actuated.

Signed by me at Chicago in the county of Cook and State of Illinois, this 15th day of May, 1923.

GEORGE A. YANOSCHOWSKI.