

1,193,698.

Patented Aug. 8, 1916.
 4 SHEETS—SHEET 1.

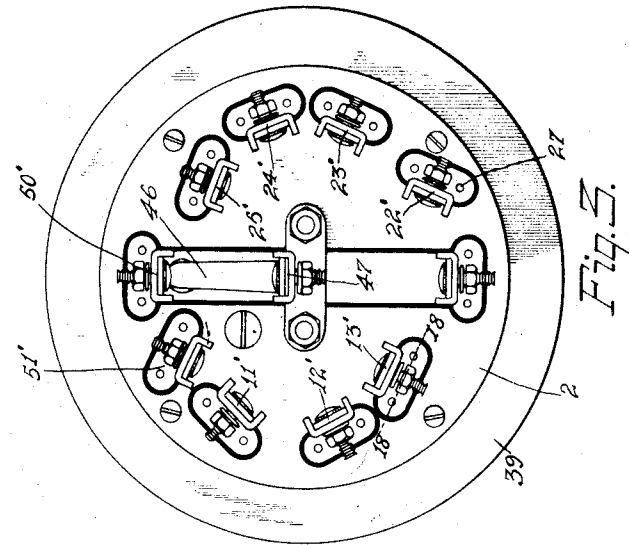


Fig. 3.

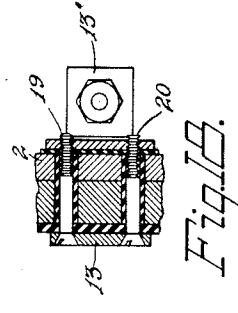


Fig. 12.

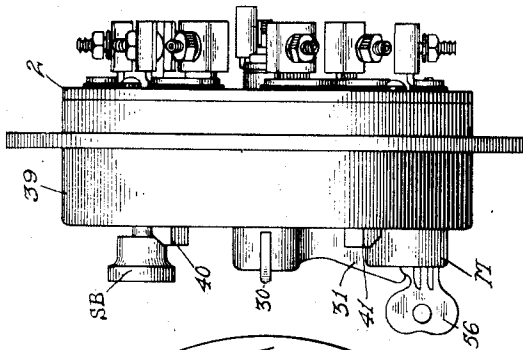


Fig. 2.

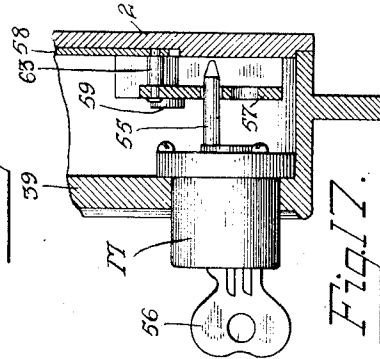


Fig. 17.

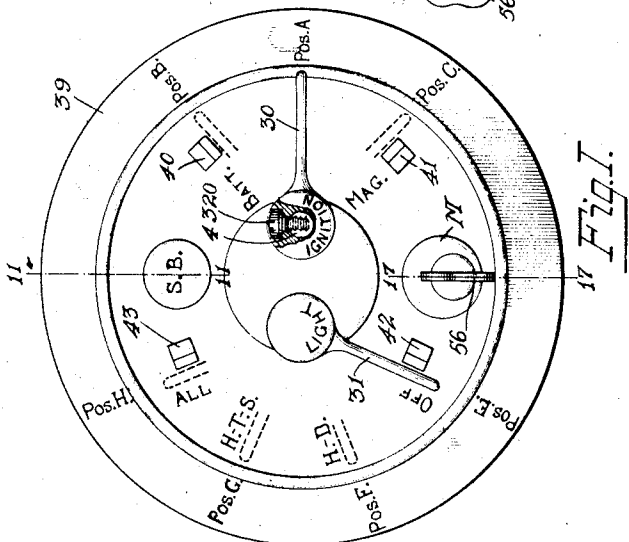


Fig. 1.

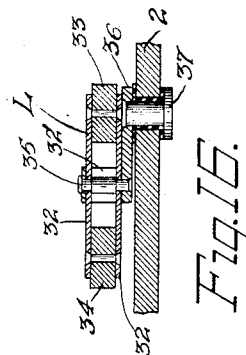


Fig. 16.

Witnesses
 G. E. Mueller
 Wm. Berghahn

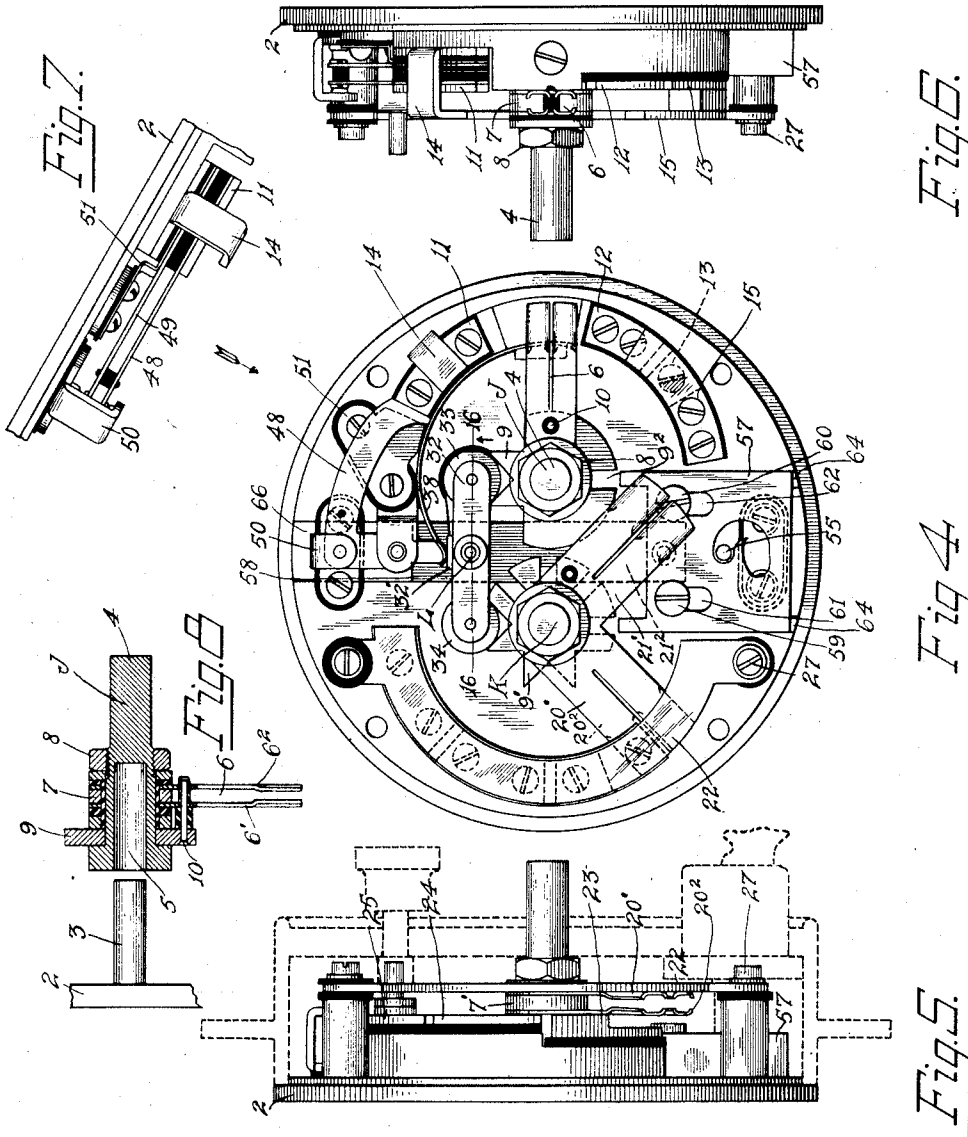
Inventor:
 William Kaishling
 By Curtis Blamp
 Attorney.

W. KAISLING.
IGNITION SWITCH.
APPLICATION FILED APR. 10, 1913.

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4 SHEETS—SHEET 2.



Witnesses:

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Wm Berghahn

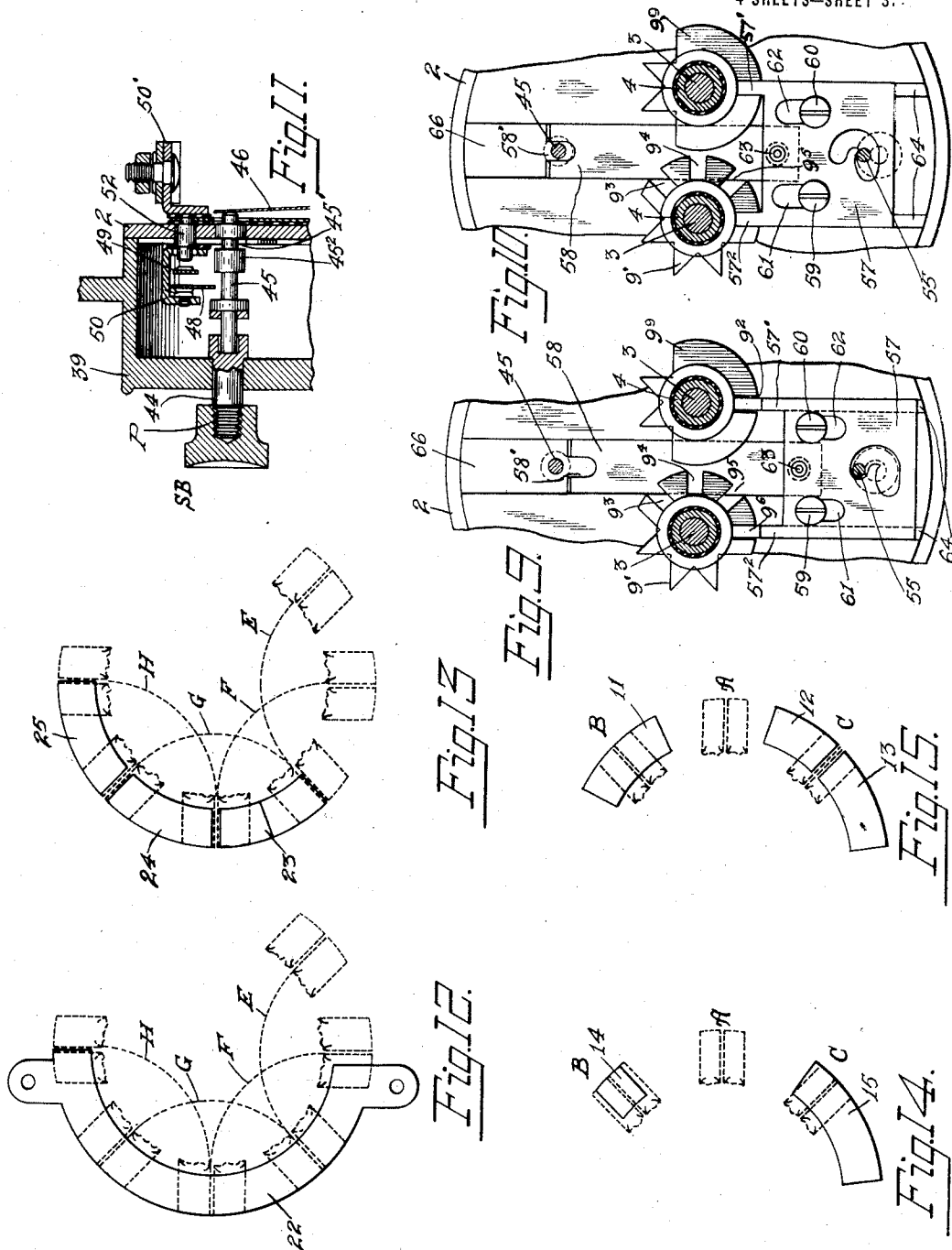
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4 SHEETS—SHEET 3.



Witnesses:

G. E. Mueller
Wm. Berghahn

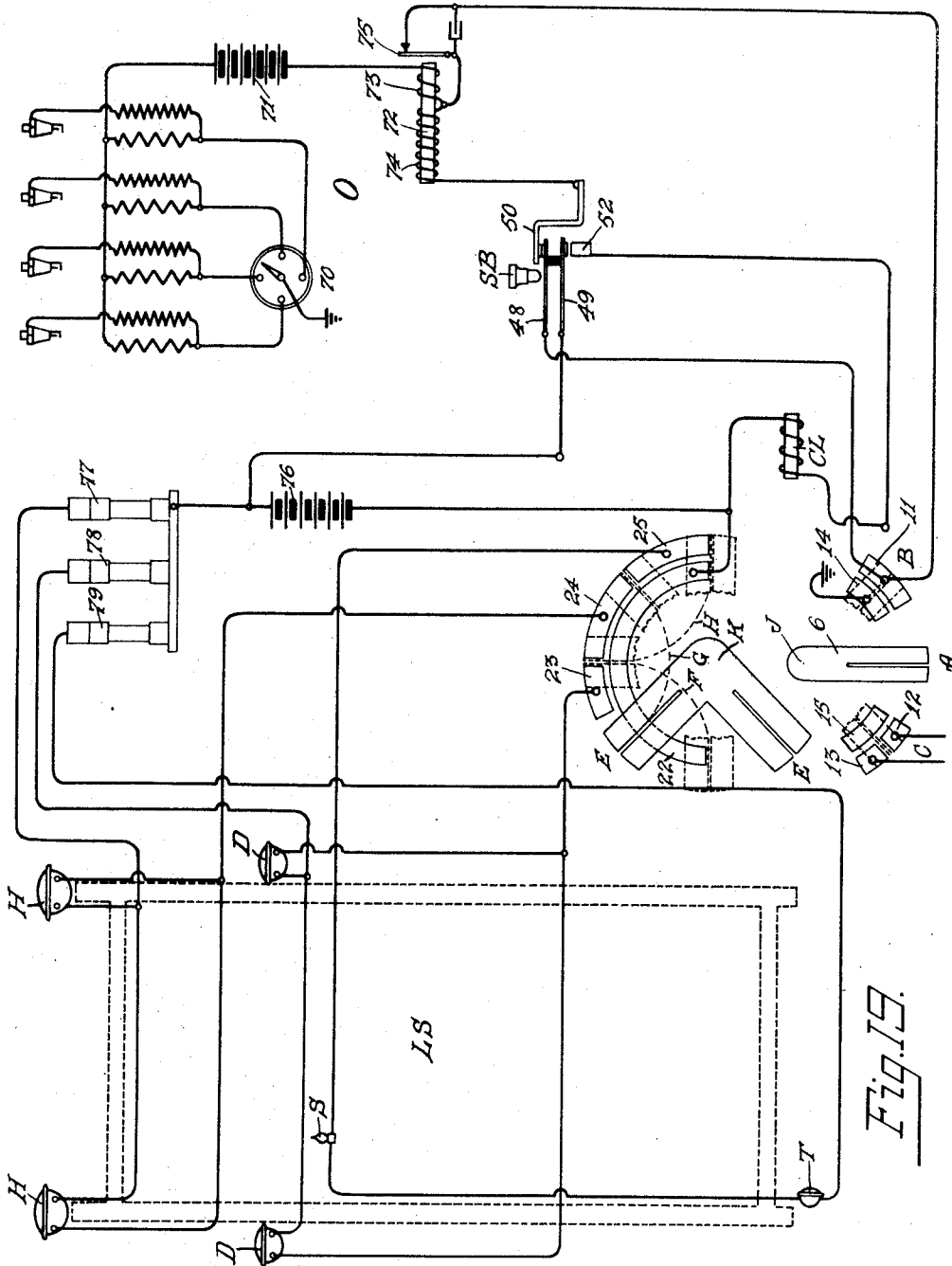
Inventor:

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Patented Aug. 8, 1916.

4 SHEETS—SHEET 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM KAISLING, OF CHICAGO, ILLINOIS, ASSIGNOR TO KELLOGG SWITCHBOARD AND SUPPLY COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

IGNITION-SWITCH.

1,193,698.

Specification of Letters Patent.

Patented Aug. 8, 1916.

Application filed April 10, 1913. Serial No. 760,180.

To all whom it may concern:

Be it known that I, WILLIAM KAISLING, a citizen of the United States of America, and residing in Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Ignition-Switches, of which the following is a specification.

My invention generally speaking, relates to electrical switches and is directed more particularly to combination lighting and ignition switches for automobiles such as are usually provided for control by the operator. A device of this character has previously been provided by me and shown in my application Serial No. 745,797 and an object of the present invention is to provide an improved switch structure of the above character which is more simple, compact and cheaper to manufacture and having certain other features as will be hereinafter more particularly pointed out.

I will now refer to the accompanying drawings which illustrate a preferred embodiment of my improved switch structure and in which:

Figure 1 is a face view of my invention; Fig. 2 is a right side elevation of Fig. 1; Fig. 3 is a rear view of Fig. 2; Fig. 4 shows the interior mechanism with the front cap, operating levers and button removed; Fig. 5 is a left side view of Fig. 4; Fig. 6 is a right side view of Fig. 4; Fig. 7 is a partial view of Fig. 4 looking in the direction of the arrow 1; Fig. 8 is a sectional view through the ignition switch and showing movable members removed from its supporting shaft; Fig. 9 is a view through the middle part of Fig. 4 but with certain parts removed to more clearly show the locking arrangement for the controlling levers and button; and with the parts at normal; Fig. 10 is a view similar to Fig. 9 but with the lock operated and the bolt in locking engagement with the three controlling members; Fig. 11 is a sectional view along the line 11, 11, of Fig. 1 looking in the direction of the arrow indicated thereon and illustrating more particularly the starting key and cooperating parts; Figs. 12 and 13 illustrate the contact blades or segments of the light switch and showing the normal and operating positions of the wipers by dotted lines; Figs. 14 and 15 illustrate the contact

blades or segments of the ignition switch and show the normal and operating positions of the wipers by dotted lines. Fig. 16 is a sectional view along the line 16, 16 of Fig. 4 looking in the direction of the arrow indicated thereon, showing the yielding switch holding member; Fig. 17 is a sectional view along the line 17, 17 of Fig. 1 and showing more particularly the locking arrangement; Fig. 18 is a sectional view along the line 18, 18 of Fig. 3 showing the connection extending from the switch contact blade or segment to the rear terminal and the method of holding these parts together; and Fig. 19 illustrates diagrammatically a circuit arrangement adapted for use in connection with the switch structure referred to.

Referring now more in general to the device as illustrated, it comprises a light switch having a normal and three operating positions whereby three combinations of lights may be connected in circuit, the preferred arrangement being such that when the light lever is moved to its position F, the head and dash lights are lighted and when the light lever is moved to its position G, the head, tail and speedometer lights are lighted. Now if the light lever is thrown to its position H all of the lights are thrown in circuit. Of course it is to be understood that my invention is not limited to these particular combinations of lights or to the four positions of the switch, all of which will be apparent from an understanding of the structure.

I also provide an ignition switch normally resting in an inoperative position A and having operating positions B and C, and with the preferred ignition control when the ignition lever is thrown to its position B, the battery ignition is in circuit and when the lever is thrown to its position C the magneto is switched in circuit.

I also provide a starting button SB which when the device is used with a uni-spark system such as is shown in Fig. 19, if depressed converts the uni-spark system into a vibrating system so as to give a more effective starting circuit, this switch also being arranged to operate a clutch magnet such as is used in the well-known Delco self-starting system.

I also provide a locking arrangement con-

sisting of a standard Yale key-lock which controls a bolt adapted to lock the three switches. The locking arrangement of the ignition switch is preferably such that it is not effective unless the switch is in its A or inoperative position. That is, I have preferably arranged the ignition switch so that when it is in an operative position the lock cannot be rotated by the key, thus indicating to the operator that the ignition switch is not in an inoperative position whereupon when it is moved to its position A the lock may be operated and the key withdrawn. By this arrangement the operator cannot lock his combination switch with the ignition switch in its operative relation.

Now as to the locking arrangement of the light switch, this is preferably so arranged that the key may be rotated to lock the switch in any of its positions. That is, the light switch may be thrown into any desired position and then locked. In this way an operator desiring to leave his car standing outdoors at night may leave any combination of lights on and still be able to lock the switch against operation.

As already stated, the same key and lock are used for locking both the ignition and light switches and I have preferably provided an arrangement whereby this same key and lock also locks the starting button so that if the lock is operated it is impossible to operatively depress the starting button.

With this general understanding of my invention as illustrated, I will now describe it more in detail.

A mounting frame or back plate 2 is provided carrying a pair of switch supporting studs 3 as shown in Fig. 8, there being such a stud for the light switch member K and one for the ignition switch J. Referring first to the member J of the ignition switch, it comprises a main shaft 4 having a bearing 5 adapted to fit the stud 3. Shaft 4 carries a pair of insulatingly mounted wipers 6 which are held apart although electrically connected by the washer 7 and clamped upon the shaft 4 by means of a nut 8. I have provided a yielding holding device for holding each of the switches in its different positions, this device including a notched disk 9 which is also rigidly clamped upon shaft 4 by the nut 8. In order to hold the notched disk and its wipers 6 in definite relation to each other, a pin 10 is preferably provided and driven through the disk 9 through insulated bushings extending through wipers 6. In Fig. 8 the switch device J is shown removed from its stud 3 but when the device J is in place it rests against the main frame 2. Coöperating with the wipers of member J are the segments 11 to 15 inclusive as illustrated in Figs. 14, 15, the segments 11, 12, 13 operating in connection

with wiper 6¹ and connected through to terminals 11¹, 12¹, 13¹ as shown in Fig. 3. In Fig. 18 I have illustrated the manner in which a segment is connected to its rear terminal, this figure being a section along the line 18, 18 of Fig. 3, the segment 13 being insulated by means of the insulation plates and bushings and connected to terminal 13¹ by means of the screws 19, 20. The segments 14, 15 of the ignition switch coöperate with the wiper 6², the segment 14 being in electrical contact with the frame 2 and segment 15 being insulatingly mounted on the frame but adapted to cross the segments 12, 13, through the ignition wipers when the ignition lever is in the magneto position C.

Referring now to the light switch, its member K is constructed similar to the member J of the ignition switch, except that the notched segment 9¹ differs as does also the wipers as will be clear from the illustration. The wipers of member K are preferably constructed of two parts electrically united through a washer as 7¹, the upper wiper comprising parts 20¹, 21¹ and the lower parts comprising corresponding parts 20² and 21². The outer blades 20¹, 21¹ coöperate with the common blade 22 as will be clear from Fig. 12 while the inner blades 20², 21² coöperate with the segments 23, 24, 25, which last said segments connect to the corresponding terminals 23¹, 24¹, 25¹ while the common blade or segment 22 connects to the terminal 22¹, the common blade 22 being connected to its terminal 22¹ through clamping screw 27. With the light switch wipers in their normal position E, there is no connection between the contact blades of this switch, but when it is moved to its position F the segments 22, 23, 24 are connected as is indicated in Figs. 12, 13 giving one combination of lights. Now, if the light switch is thrown to its position G, the blades 22, 24, 25 are connected as is indicated in Figs. 12, 13 giving a second combination and if the light switch is thrown to its position H, blades 22, 23, 24, 25 are connected thus getting the third combination.

For controlling the ignition and light switches I preferably provide levers 30, 31, which are secured to their respective operating members by means of screws as 320.

In order to yieldingly hold the switches in any of their positions I have provided a holding device L comprising centrally pivoted plates 32 carrying rotatable rollers 33, 34 adapted to coöperate with their corresponding notched disks 9, 9¹. The plates 32 are pivotally supported at a point between the two rollers by a stud 35 carried by an arm 36 in turn pivotally supported by means of shoulder stud 37 which is pivotally and insulatingly held in the back

plate or frame 2. A spring member 38 rests upon the connecting bridge 32¹ of the plates 32 and thus presses the rollers 33, 34, against their respective disks. When a switch is operated the teeth of its notched disk are rotated against the corresponding roller 33, or 34 as the case might be whereby due to the action of spring 38 and as the disk advances the roller acts upon the next notch so as to give a quick snap action to the switch and at the same time hold it in position.

In Fig. 5 I have illustrated by dotted lines the manner in which the cap or casing 39 incloses the apparatus, this casing at the same time holding the members J and K in position upon their respective studs 3. In assembling the device the casing 39 is placed over the switch mechanism before the levers 30, 31, are attached to their respective switches. To limit the movement of the levers 30, 31, I have provided stops preferably in the form of lugs 40, 41, 42, 43, which are preferably integral with the casing 39 and adapted to be engaged by the levers when moved to their extreme positions.

As already referred to a starting button SB is provided shown in detail in Figs. 7 and 11 and comprising an actuating plunger P held in the casing 39 as shown in Fig. 11, the shank 44 being adapted to slide in the casing and connected to a contact operating shaft 45, which shaft rests in the end of shank 44 under tension of a spring 46 which is attached to a terminal 47 which terminal is in turn in electrical contact with the rear frame 2. A pair of contact springs 49 48 are also attached to the frame, contact spring 48 being normally in contact with a contact member 50 having a terminal 50¹, said spring 48 also being in electrical contact with the ignition switch segment 11. The other contact spring 49 is connected through the strap 51 to a terminal 51¹, said spring 49 being adapted to engage the frame contact 52 when the plunger P is depressed. Such depression of the plunger also causes the contact spring 48 to leave its normal contact 50. When the casing 39 is removed from the switch frame, the shank 44 is removed with the casing while the shank 45 remains in association with the switch frame.

As already referred to in general, a locking arrangement is provided whereby the operating members may be locked in different positions and to this end I have provided an ordinary Yale lock M, as shown in Fig. 17 modified by the addition of a pin 55 which pin is eccentrically disposed as shown in Figs. 9 and 10 so that when the key 56 is rotated the pin 55 moves around its center. Connecting mechanism is provided between the lock M and the switch members whereby the switch members may

be locked, this connecting mechanism M being in the form of sliding plates 57, 58, which are held in the frame 2 by means of shoulder screws 59, 60 which extend through slots 61, 62 and thread into the frame 2. The plates 57, 58 are attached to each other by means of a riveting stud 63 as shown in Fig. 17. The plate 57 is a U-shaped member having its extending portions resting in grooves 64, said plate 57 also having projections 57¹, 57² which are adapted to cooperate with the disks 9, 9¹ respectively to lock the switch members. As already stated, I have preferably arranged the ignition switch so that it can only be locked in an inoperative position and therefore I have provided but a single slot 9² in the disk 9 while the disk 9¹ has four slots 9³, 9⁴, 9⁵, 9⁶ whereby the light switch may be locked in any one of its four positions. In Fig. 9 the locking plate 57 is shown in its unlocked position while in Fig. 10 said plate is shown in locking engagement with the switch disks and with the switches in their inoperative positions.

The locking plate 58 which as already stated is connected to locking plate 57, rests in a guiding slot 66 and has a slotted end 58¹ which is adapted to move into the slot 45¹ of the starting button shank 45 to prevent its operation. In Fig. 9 the plate 58 is shown out of locking engagement with the shank and in Fig. 10 the plate 58 is shown in locking engagement therewith. I have also arranged the locking mechanism so that it cannot be effectively operated while the starting button SB is depressed, this being brought about by the arrangement of slot 45¹ and collar 45², the collar 45² preventing the effective operation of the lock while the starting button is depressed.

In Fig. 19, I have illustrated a circuit arrangement adapted for cooperation with the switch described in my invention, the switch parts being shown diagrammatically and in their normal position, and I have used the same reference characters as used in the switch illustration so that the operation may be readily followed.

Referring first to the ignition switch J, I have shown connected therewith an ignition circuit O comprising a distributor 70 connected to four coils and spark plugs and a battery 71, and a uni-spark relay 72. In general the operation of the ignition circuit O is as follows: With the ignition switch J in its position B, each time a distributor 70 connects to one of its contacts a circuit is closed in multiple through the windings 73, 74 to the ground through segments 11, 14. The ensuing energization of relay 72 causes it to attract its armature and interrupt its normal contact 75 whereby the circuit through the low resistance winding 73 is interrupted to effect a spark at the connected

spark plug. Relay 72 is then maintained energized through its low winding 73 and high resistance winding 74 until the circuit is broken at the distributor 70, such operation of the relay 72 being effected upon each closure of a distributor contact. Assuming the engine is not running and the operator wishes to start it, he presses the starting button SB and thus interrupts contacts 48, 50 thereby also opening the circuit through the locking winding 74. As long as this circuit is interrupted the relay 72 will rapidly vibrate each time a distributor contact is closed as the relay circuit is through its normally closed contact 75. The operation of starting button SB also is effective to close the contacts 49, 52 whereby the clutch magnet CL is connected in circuit through the battery 76 thus energizing the magnet to bring about the starting of the engine in accordance with the well-known Delco starting system, although it is to be understood that the engine starting circuit is not part of my invention and being merely referred to here to illustrate one adoption of my invention. Of course as soon as the button SB is released the contacts 48, 50, are closed thereby bringing about the uni-spark operation of the relay 72.

Now as to the lighting system LS, I have preferably provided head lights H, dash lights D, a speedometer light S and tail light T. The lights D and H are connected in circuit with battery 76, fuses 77, 78, and the segments 22, 23, 24, in such a manner that when the lighting switch K is moved to its position F, segments 23, 24 are connected to the common segment 22 and thus establishing a circuit for the head and dash lights H and D respectively. The lights S and T are preferably connected in series so that the operator by watching the lamp S is able to tell whether the tail light T which is connected in series therewith is lighted. Lamps S and T are connected through fuse 79 to one pole of battery 76 and then to the segment 25 so that when the switch is moved to cross segments 22, 25, the lamps S and T are lighted. Assuming the operator has thrown the light switch K to its position G, then segments 24, 25 are connected to the common segment 22 in which case the head lights and the speedometer and tail lights are connected in circuit. If the operator desires to connect all of the lamps in circuit, switch K is moved to its H position at which time the segments 23, 24, 25, are connected to the common segment 22 thereby lighting all of the lamps.

From the foregoing it will be seen that by the three operative positions of the light switch K, three different combinations of lights are possible.

Assuming now that the ignition switch is

in its battery position B, and with the light switch in any of its positions, although the key may be inserted in the lock, due to the cooperation between the lock plate 57, disk 9 and the lock pin 55, the key may be rotated part way but as soon as the plate 57 starts to move its projection 57¹ will engage the periphery 9^o and prevent a locking operation at the same time preventing a withdrawal of the key 56 from the lock thus indicating to the operator that the ignition switch is in an operative position. Of course when the ignition switch is thrown to its position A, the slot 9² is opposite the plate portion 57¹ so that the key may be completely rotated to lock the switch and then withdrawn. As already pointed out the lock may be effectively operated with the light switch in any position. Also, it will be remembered that due to the cooperation between the starting button and the lock, it will be impossible to effectively operate the lock and withdraw the key unless the starting button is in an inoperative position.

From the above it will be seen that although the switch may be locked and the key withdrawn with the light switch in any of its positions, it will be impossible to effectively operate the lock and withdraw the key unless the starting button and ignition switch are in operative positions.

In illustrating my invention I have chosen a preferred form but I understand that many changes and modifications thereof may be made, therefore I do not desire to be limited to the exact structure as shown but aim to cover all such changes and modifications as come within the spirit and scope of the appended claims.

What I claim as new and desire to secure by United States Letters Patent is:

1. A switch device comprising a light switch, an ignition switch and a starting switch having different positions, a locking device common to said switches, and means for rendering said locking device ineffective except when said ignition and starting switches are in inoperative positions.

2. A switch device comprising light, ignition, and starting switches, each of said switches having operative and inoperative positions, a locking device common to said switches for rendering them ineffectively movable, and means for rendering said locking device ineffective except when said ignition and starting switches are in inoperative positions.

3. A switch device comprising light, ignition and starting switches, each of said switches having operative and inoperative positions, a locking device common to said switches for rendering them ineffectively movable, means whereby said locking device may be operated to render said switches in-

effectively movable, and means to prevent such an operation of the locking device except when said ignition and starting switches are in inoperative positions.

5 4. A switch device comprising light ignition and starting switches having operative and inoperative positions, a locking device common to said switches, a removable key for said locking device, said key being
10 adapted for operating the locking device for rendering said switches ineffectively movable, and means to prevent the ineffective operation of said key and the removal thereof except when said ignition and start-
15 ing switches are in inoperative positions.

5. A switch device comprising light, ignition, and starting switches having operative and inoperative positions, a locking device common to said ignition and starting
20 switches, and means for rendering said locking device ineffective except when said ignition and starting switches are in inoperative positions.

6. A switch device comprising light ignition and starting switches, said light switch having a plurality of operative positions and said ignition and starting switches having
25 operative and inoperative positions, a locking device common to said switches, and means whereby said locking device is rendered effective when the light switch is in
30 any position but the ignition and starting switches only in inoperative positions.

7. A switch device comprising a pair of
35 rotatable switch members each carrying a star wheel, a centrally pivoted holding device having roller members at its opposite ends in engagement with a star wheel, and a yielding member bearing against said pivoted
40 member so as to permit holding co-operation between the rollers and star wheels when the switch members are rotated.

8. A switch device including a pair of
45 rotatable switch members each carrying a star wheel and having a plurality of operative positions, cooperative contacts at each of such positions, a rocking beam carrying rollers adapted to ride the peripheral edge
50 of the star wheels, a reciprocatingly mounted device pivotally supporting the said rocking beam and a resilient member yieldingly holding the wheels and rollers in cooperative relation to prevent partial movement of the switch members when rotated.

9. A combination ignition and lighting
55 switch for automobiles and the like each of said switches having a normal and an off-normal position, and a common spring controlled member provided with engaging
60 means for yieldingly holding said switches in either of their positions.

10. A lighting and ignition switch comprising a mounting plate having terminals on its back, a plurality of contacts and a

common strip on the front of said plate connected with said terminals, a brush member adapted for manual operation to cross
65 said contacts with said strip to establish different circuit combinations, a cover for said plate inclosing said contacts and brush
70 member, said plate and cover cooperating to hold said brush member in position.

11. A combined ignition and lighting switch comprising a mounting plate, stationary
75 ignition contacts on one side, stationary lighting contacts on the other, a manually adjustable ignition contact and a manually adjustable lighting contact to engage said stationary contacts respectively and mounted
80 between said sets, and mechanism for yieldingly holding said adjustable contacts in their positions having a common mounting.

12. A combination lighting and ignition switch for automobiles and the like each of
85 said switches having an on and off position, holding means for said switches, and a spring controlled common member for co-operating with the holding means of said switches for yieldingly holding them in
90 their different positions.

13. A lighting switch comprising a back plate, a pin thereon, a cylindrical brush carrying support adapted to slide over said
95 pin, said brush being insulatingly mounted in said support, common and individual stationary contacts adapted to be engaged by said brush, and a cover for said switch adapted to be fastened so as to hold said
100 brush carrying support on said pin.

14. A switching device comprising a light switch, an ignition switch and a starting switch having different positions, a locking device common to said switches, means for
105 preventing effective operation of said locking device if either said starting or ignition switches are in off position.

15. A switching device comprising a pair of rotatable switch members each carrying
110 a star wheel, a pivoted holding device having roller members at its opposite ends in engagement with said star wheels, and a yielding member for holding said pivoted device so as to permit holding co-operation between the rollers and the star wheels when
115 the switch members are operated.

16. An electrical switch combination having three switch contacts each having an idle and an operated relation, and a lock operable only when two of said contacts are
120 in their idle relation but when said other contact is in either relation, said lock when actuated serving to prevent changing the relation of any of the contacts.

17. A combination switch comprising a
125 flat circular mounting plate, an ignition and lighting switch having contacts peripherally mounted upon said plate, a pivoted contact

operating device for each of said switches intra-peripherally disposed with relation to said contacts, and a common locking device carried by said plate operable to lock said switches.

18. A combination switch including a flat mounting plate, ignition and lighting switches having circumferentially disposed contacts mounted upon said plate, a centrally positioned operating device pivotally carried by said mounting plate for each of said switches, radially extending contact makers for each of said devices coöperating with said contacts, and a locking device common to said switches operable to lock said switches against movement.

19. A combination lighting and ignition switch for automobiles and the like including a mounting plate, circumferentially disposed contact elements lying in parallel planes for said switches, a relatively centrally disposed contact operating device mounted upon said plate for each of said devices for coöperation with said contact elements, and a locking device for securing said switches against movement.

20. A combination switch comprising an ignition and a lighting switch, having circumferentially disposed contact elements, a pivoted contact operating device for each of said switches centrally positioned with relation to the corresponding contact elements, a radially extending contact element for each said positioned device coöperating with its corresponding contact elements, and a common member for yieldingly holding said switches in their various positions.

21. A switching device comprising a lighting switch, an ignition switch and a starting switch, for automobiles or the like, provided with common locking means adapted to lock the lighting switch in either on or off position and the ignition and starting switches in off position only, the said locking means being inoperative unless the ignition and starting switches are in off position.

22. A switching device comprising a lighting switch, an ignition switch and a starting switch, a common locking means, and means for operating said locking means for locking the lighting switch, said locking means being inoperative unless the ignition and starting switches are in off position.

23. A combination lighting and ignition switch including a back mounting plate, peripherally disposed stationary contacts, mounted on said plate for said switches, a relatively centrally disposed contact operating device for each of said switches for coöperation with said stationary contacts, and a common locking device operable to lock said switches.

24. An electrical switch combination having two switch contacts each having an idle

and an operated relation, a holding bar common to said switches, and a spring member operating on said bar whereby said switches are yieldingly held in their idle or operated relation.

25. An electrical switch having a movable wiper for controlling the ignition circuits and a second movable wiper for controlling the lighting circuits, a notched rotatable member for each of said wipers, and a common slidable locking bar provided with projections for coöperating with said notches for locking said switch wipers against movement.

26. An electrical switch combination having two switch contacts each having an idle and an operated relation, rotatable members provided with short defiles for each of said switch contacts, and a slidable lock plate common to said switches provided with short projections for coöperation with the defiles in said rotatable members thereby serving to prevent changing the relation of either contact.

27. A combination lighting and ignition switch for automobiles and the like each of said switches having an on and an off position, coöperating contacts and contact makers for said switches, a notched rotatable cam for each of said switches, and a common slidable locking member provided with teeth for engaging the notches of said cams for effectively locking said switches against operation.

28. An electrical switch having a rotatable wiper for controlling the ignition circuits and a second rotatable wiper for controlling the lighting circuits, a notched member for each of said wipers and rotatable therewith, and a slidable lock member common to said wipers and provided with projecting ears adapted to register with the said notches to prevent changing the relation of either of said wipers.

29. A switch device including a lighting switch and an ignition switch each of said switches having a normal and an off-normal position, a slotted member for each of said switches, a slidable bar common to said slotted members and provided with a projecting tooth for each of said members, a removable key for sliding said bar back and forth, said teeth operating to prevent changing the relation of either slotted member when registering with slots in said members.

30. The combination with a lighting switch and an ignition switch, a normal and an off-normal position for each of said switches, a member common to said switches for yieldingly holding them in their different positions, a rotatable cam member for each of said switches, a lock bar common to said switches and provided with teeth for

registering with openings in the said cam members, and means for moving said lock bar to lock said lighting switch in any one of its positions and the ignition switch in its
5 normal position.

31. A switching device including a flat mounting plate, peripherally disposed stationary contacts secured to said plate, a pair of intra-peripherally disposed contact
10 wipers for coöperation with said stationary contacts, a notched cam member for each of said contact wipers, a lock member provided with teeth, and means for moving said last member to cause said teeth to engage notches
15 in said cam members thereby locking said wipers against movement.

32. A combination lighting and ignition

switch including a mounting plate, a plurality of stationary contacts secured to said mounting plate, a pair of rotatably secured
20 contact wipers for coöperation with said stationary contacts, a slidable lock member common to said wipers, and projections and registering depressions disposed between
25 said lock member and said rotatably secured wipers for securing said wipers against rotation.

Signed by me at Chicago, county of Cook and State of Illinois, in the presence of two witnesses.

WILLIAM KAISLING.

Witnesses:

M. R. ROCHFORD,
B. O'BRIEN.