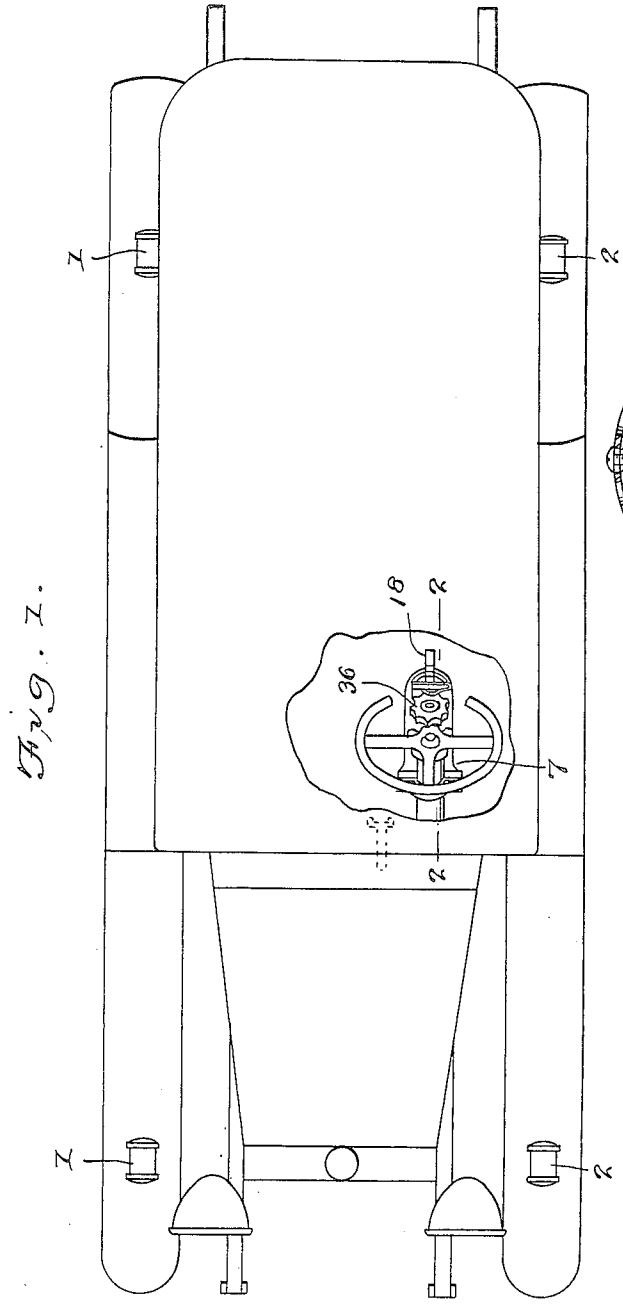
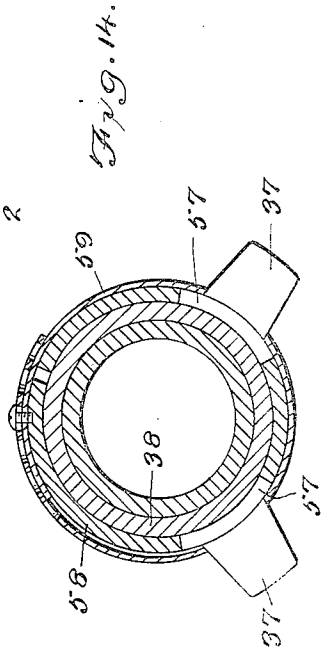
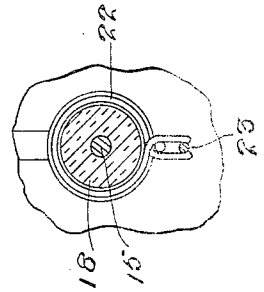
March 22, 1932. M. E. JOHNSON 1,850,549

AUTOMATIC SWITCH

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AUTOMATIC SWITCH

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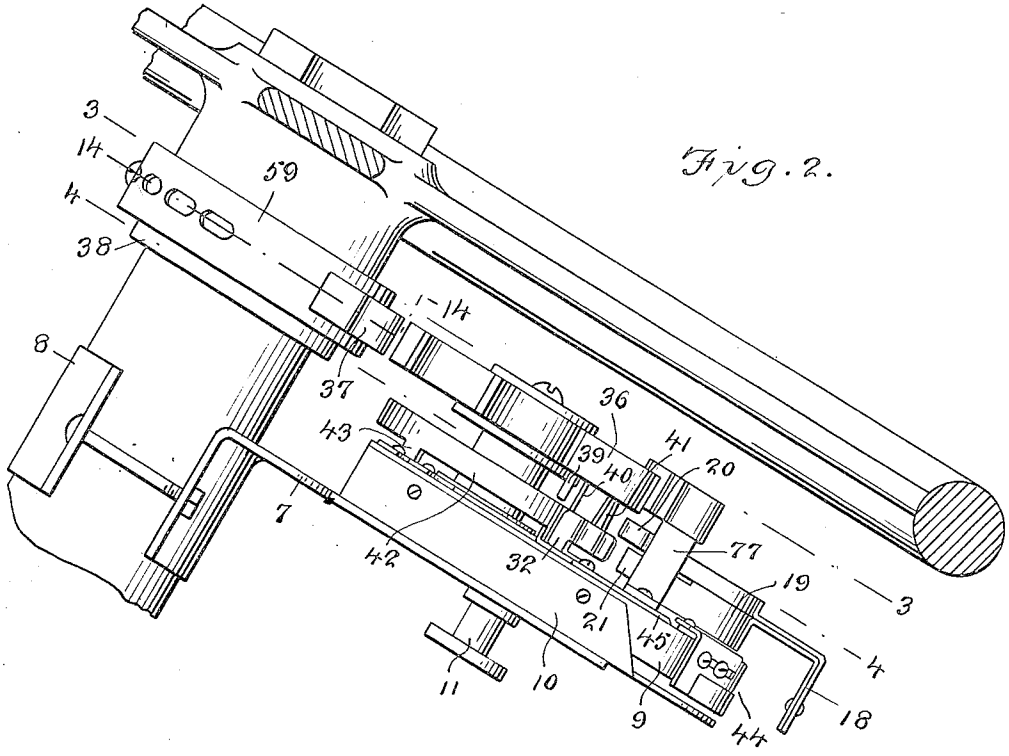
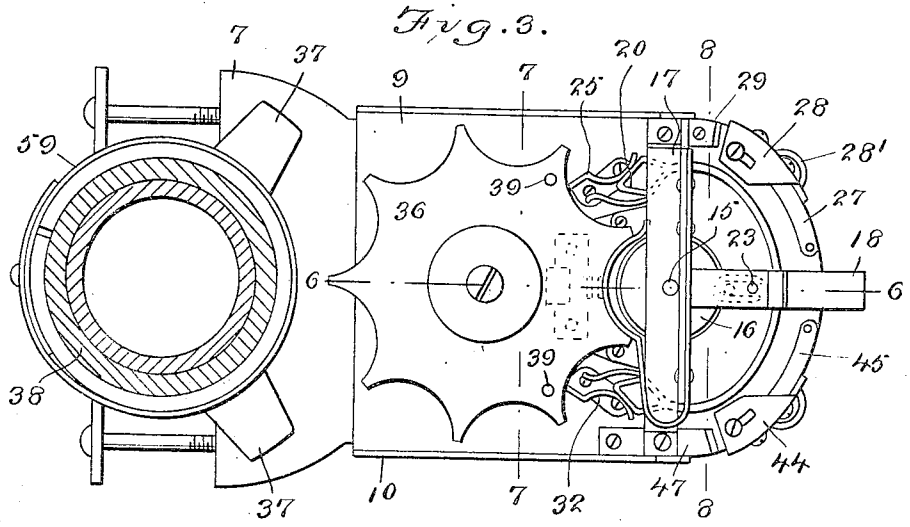


Fig. 2.

Fig. 3.



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AUTOMATIC SWITCH

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Fig. 4.

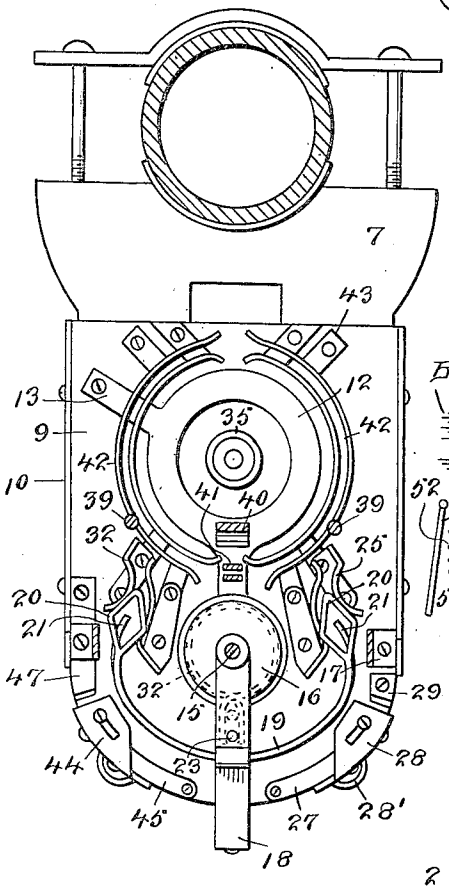


Fig. 5.

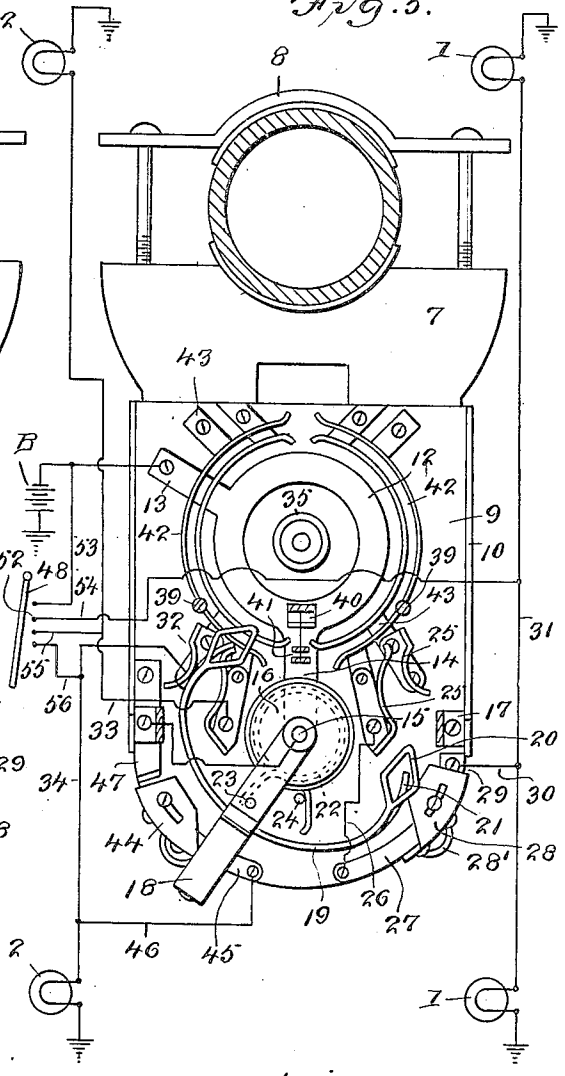


Fig. 10.

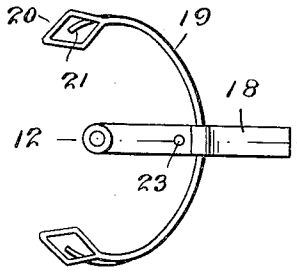


Fig. 11.

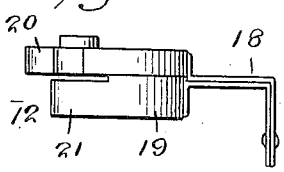
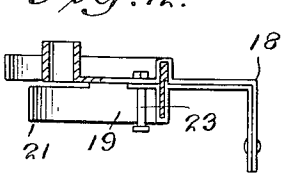


Fig. 12.



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Fig. 6.

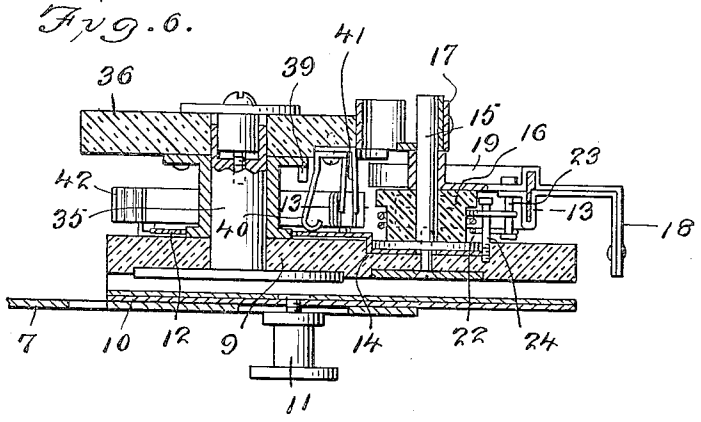


Fig. 7.

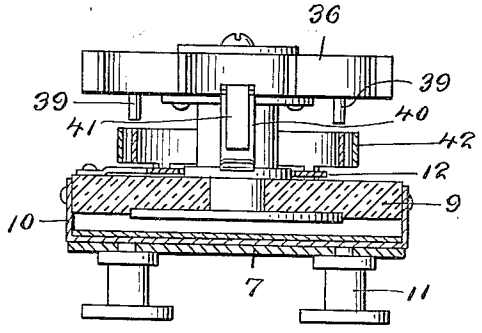


Fig. 8.

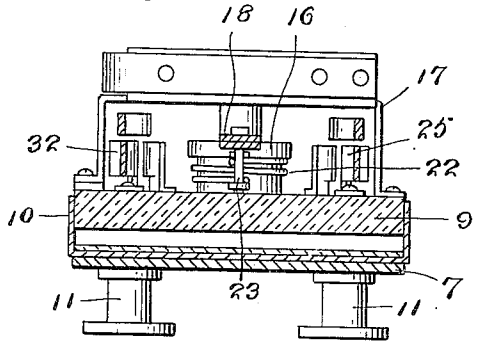
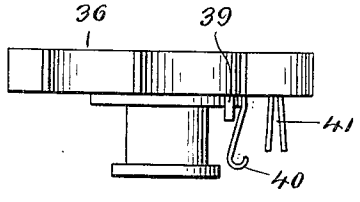


Fig. 9.



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Patented Mar. 22, 1932 1,850,549

UNITED STATES PATENT OFFICE

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AUTOMATIC SWITCH

Application filed February 17, 1930. Serial No. 429,199.

This invention relates to signal means for a vehicle, the general object of the invention being to provide means for lighting lamps at the front and rear of a vehicle at one side thereof when the vehicle is to be turned to one side of the road and to light another pair of lamps at the opposite side of the vehicle when the vehicle is to be turned in the opposite direction, with means whereby the circuits of the lamps are automatically broken when the steering mechanism of the vehicle is turned to bring the front wheels in a straight position again, the lamps remaining lighted while the vehicle is making the turn and not being extinguished until the turn has been completed.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a plan view of a motor vehicle equipped with the invention, the top of the vehicle being broken away to show interior parts.

Figure 2 is a section on line 2—2 of Figure 1.

Figure 3 is a section on line 3—3 of Figure 2.

Figure 4 is a section on line 4—4 of Figure 2.

Figure 5 is a view similar to Figure 4, but showing the parts in a different position.

Figure 6 is a section on line 6—6 of Figure 3.

Figure 7 is a section on line 7—7 of Figure 3.

Figure 8 is a section on line 8—8 of Figure 3.

Figure 9 is a side view of the star wheel which is engaged by the projections on the steering column.

Figure 10 is a view of the switch for closing the circuits of the signal lamps.

Figure 11 is a side view of said switch.

Figure 12 is a section on line 12—12 of Figure 10.

Figure 13 is a section on line 13—13 of Figure 6.

Figure 14 is a section on line 14—14 of Figure 2.

In these drawings, the numerals 1 indicate the lamps on the right side of the vehicle and arranged at the front and rear thereof and the numerals 2 indicate the lamps on the left hand side of the vehicle at the front and rear thereof.

A support 7 is clamped to the steering post, as shown at 8, and a block 9 of non-conducting material is arranged in a frame 10 which is adjustably attached to the support by the headed screws 11 passing through slots in the support and engaging the frame so that by tightening these screws, the frame and the block are fastened in adjusted position to the support. This adjustment permits the block and the parts carried thereby to be adjusted toward and away from the steering post. A ring 12 of metal is secured to the upper face of the block and has an arm 13 thereon which is electrically connected to a battery B or other source of supply. A second arm 14, connected with the ring, is also electrically connected to a post 15 on the block and having a bushing 16 of non-conducting material fitting over its lower end. A bridge piece 17 has a hole in its center through which the post passes and the bent ends of this bridge piece are fastened to the block. A switch arm 18 has one end pivoted to the post and a substantially semi-circular member 19 is fastened to the arm intermediate the ends of the arm, the ends of this semi-circular member being formed with the cams 20 and the spring contacts 21. A spring 22 is coiled around the bushing 16 with its ends projecting rearwardly and a depending pin 23 on the switch arm 18 extends between these ends so that when the switch arm is moved in one direction or the other, the pin will engage an end of the spring, thus tensioning the spring and causing the spring

to return the arm to a neutral position when the arm is released. A stationary pin 24 on the block extends upwardly between the ends of the spring and acts as a stop for the said ends.

A pair of spring contacts 25 is fastened to the block in the path of the right hand end of the member 19, so that when the member is moved to the right by the switch arm 18, the spring part 21 will pass between the contacts 25 so that it will be frictionally engaged by the contacts and the movable part of the switch will be held in switch closing position. One of these contacts 25 is connected by a conductor 26 with a metal strip 27 on the block to which is slidably connected a manually operated switch 28, which when in its forward position, will engage a terminal 29 which is connected by a conductor 30 with a conductor 31 connected wth the lamps at the right hand side of the vehicle. A pair of spring contacts 32, similar to the contacts 25, is arranged in the path of the left hand side of the member 19 so that the spring part 21 at the left hand end of the member 19 will engage these contacts 32 when the switch is moved to the left and thereby said contacts 32 will frictionally hold the member 19 in its adjusted position. One of the contacts 32 is connected by a conductor 33 with the front lamp at the left side of the vehicle and the other contact 32 is connected by a conductor 34 with the rear lamp at the left side of the vehicle.

Thus it will be seen that when the vehicle is to be turned to the right, the switch arm 18 is moved to the right so as to engage the right end 21 of the member 19 with the contacts 25 so that current will flow from the battery through the ring 12, the arm 14, post 15, switch arm 18, member 19, one of the contacts 25, conductor 26, strips 27, switch 28, terminal 29 and the conductor 31 to the right lamps, thus indicating that the vehicle is to make a right turn. When the vehicle is to make a left turn, the switch arm 18 is moved to the left, placing the left end of the member 19 in engagement with the contacts 32 and then the current will flow from the battery through the ring 12, post 15, arm 18, member 19, one of the contacts 32, conductor 33 to the front lamp and from the other contact 32 through the conductor 34 to the rear lamp, thus indicating that the vehicle is to make a left turn. As before stated, the frictional engagement between the contacts 25 or 32 will hold the member 19 and arm 18 in adjusted position so that after the arm has been moved to circuit closing position, it will remain in this position.

A post 35 is carried by the block and a star wheel 36 is rotatably mounted on the post. This wheel is adapted to be engaged by a pair of projections 37 of non-conducting material connected with the steering shaft 38 and the wheel 36 carries a pair of pins 39, a depending brush 40 and a pair of depending spring contacts 41. The brush 40 contacts the ring 12 and is electrically connected with the contacts 41 so that the contacts are always connected with the source of supply. Two pairs of semi-circular conductor members 42 are arranged under the wheel and supported from the block by the strips 43. These pairs of members are oppositely arranged and form double circles and the pair of contacts 41 are adapted to pass between one pair of members 42, when the wheel is turned in one direction, and between the other pair when the star wheel is turned in the opposite direction, it being seen that when the contacts 41 pass between the members 42, they will frictionally engage said members and thus make a good electrical connection. The rear strips 43 are connected with the contacts 25 and 32 and spaced conductors 42.

Thus when a circuit is made to either pair of lamps by the operation of the switch arm 18 and its associated parts, the circuit will remain closed as before stated, but when the steering wheel is turned to make the turn, the engagement of the star wheel by a projection 37 will turn said star wheel and this turning movement of the star wheel will cause the contacts 41 to engage the cam 20 of the member 19 so that the member 19 is moved to a position where the frictional engagement of its part 21 with either the contacts 25 or 32 will be broken and the spring 22 will return the parts 18 and 19 to neutral position. However, as the contacts 41 are in engagement with the pair of contact members 42, the circuits to said lamps will remain closed as current will pass from the ring 12 through the brush 40, contacts 41, contact members 42, the front connecting elements 43 (Fig. 5) and contacts 25 or 32 to the lamps which are electrically connected to said contacts 25 or 32. Thus the lamps will remain lighted as the vehicle is taking the turn. When the steering wheel is brought back to straighten the wheels, however, the contacts 41 will move out of engagement with the members 42 and thus the circuit to the lamps will be broken. Figure 5 shows this neutral position of contacts 41 and also shows the left cam of member 19 as being in the path of left pin 39 as the latter moves counter clockwise under the following circumstances. If the switch arm 18 is moved to a position to close the circuit of a pair of the lamps to indicate a turn, say a left turn, for instance, and then the driver changes his mind and makes a right turn, a pin 39 would engage and shift to inoperative position the left cam 20 of the member 19 and thus cause the parts 18 and 19 to return under action of spring 22 to normal or neutral position and as the contacts 41 came into engagement with the right hand members 42, the right lamps would be lighted, as before ex-

plained. If a vehicle should be stopped with the front wheels turned into a curb, the parts of the device would light the right hand lamps so that in order to extinguish the lamps if the wheels are so turned, I provide the switch 28 which can be moved away from the contact 29 so as to break the circuit. This switch is moved by its handle 28'.

In order to permit the rear left lamp to be used as a parking lamp, I provide a switch 44 slidably associated with a strip 45 which is connected with the conductor 34 by a conductor 46, the switch, when in closed position, engaging a contact 47 which is electrically connected with the bridge piece 17 so that when the switch 44 is closed, current will flow to the rear left lamp at all times.

In Figure 5 I have shown a switch 48 adapted to engage simultaneously four contacts 52 and light the four lamps if the vehicle is to be stopped or the speed checked. One of these contacts is connected by a conductor 53 with the battery, another by a conductor 54 with the conductor 31, a third contact being connected by the conductor 55 with the conductor 33 and the fourth by a conductor 56 with the conductor 34.

The projections 37 are carried by blocks 57 inserted in recesses in a ring 58 of rubber or the like which encircles the steering post and which is enclosed by an adjustable ring 59 of metal which has openings therein through which the projections pass. Thus the projection carrying parts can be adjusted on different sizes of steering posts.

From the foregoing it will be seen that with this device, the operator, before making a turn to the right or left, moves the switch arm 18 to close the circuit of the pair of lamps on that side of the vehicle on which the turn is to be made. The switch remains in this position with the circuit closed until the steering mechanism is turned, when the switch is released and returns to neutral position, but the circuits of the lamps remain closed until the turn is completed and the front wheels brought back to a straight position. The switch 28 acts to break the circuits to the right lamps when the vehicle is parked with its front wheels turned toward the curb. Attention is also called to the fact that no matter in which way the hand lever is set, the same will be moved to neutral position by the turning movement of the star wheel by the steering mechanism and the lamps on that side of the car on which the turn is made will be lighted.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

What I claim is:—

1. A switch including an arc-shaped member having cams at its ends and spring contact members at its ends below the cams, two pairs of spring contacts, each adapted to be arranged in a lamp circuit and engaging the spring contacts of the switch member when the switch is moved in one direction or the other, whereby a circuit will be closed and the switch member will be held in circuit closing position by the spring contacts, a rotary member, means on the rotary member engaging the cams for moving the switch to neutral position, a ring connected with the source of supply and with the switch, a brush on the rotary member engaging the ring and spaced conductor members connected with the contacts for supplying the lamp circuits, spring contact means on the rotary member, cooperating with the conductor members and having connection with the brush, said contact means on the rotary member engaging and then passing off the connection between the ring and switch when the rotary member is moved in either direction from a neutral position, and thereafter engaging the spaced conductor members.

2. A structure comprising the elements of claim 1, and mechanical means for moving the rotary member through a predetermined angle.

3. A structure comprising the elements of claim 1, and means for automatically restoring the switch to neutral position when moved therefrom in either direction.

4. In switch mechanism, a plurality of pairs of contact elements adapted for connection with lamp circuits, a pair of spaced conductors connected with each pair of contact elements, a rotary element adapted to be mechanically shifted, contact means on the rotary element, for cooperation with the spaced conductors and having connection with a source of current, a switch element approximately arc shaped, devices on the switch element for engaging the contact elements of the lamp circuits, and devices on the switch element movable into the path in which the contact means on the rotary element move, the contact means last named engaging the devices movable into the path specified, for returning the switch element to neutral position before the return of the rotary element to neutral position and prior to breaking the circuit between the contacts on the rotary element and the spaced conductors.

In testimony whereof I affix my signature.

MARK E. JOHNSON.