Jan. 5, 1937. W. C. EDWARDS 2,067,077

LAMP SWITCH

Filed Aug. 8, 1935

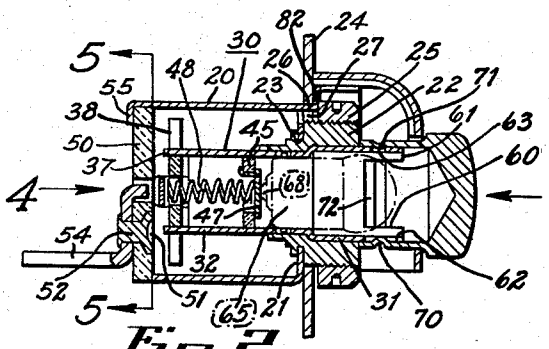


Fig. 2

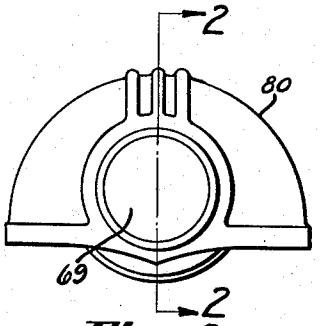


Fig. 1

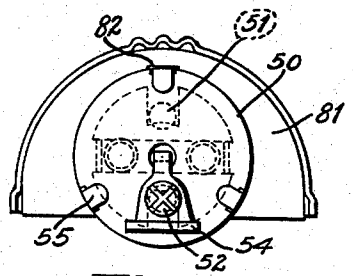


Fig. 4

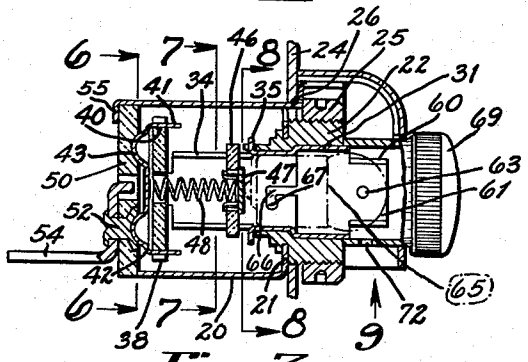


Fig. 3

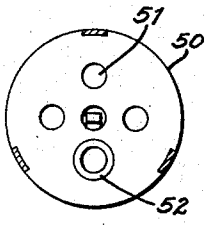


Fig. 5

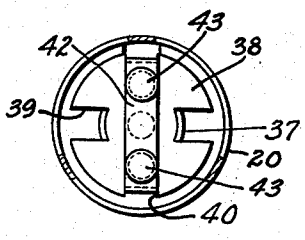


Fig. 6

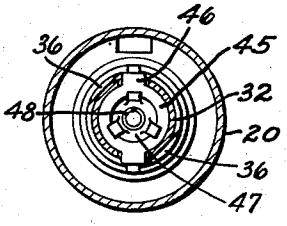


Fig. 7

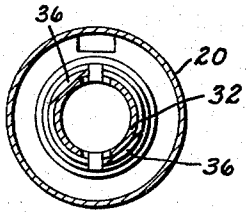


Fig. 8

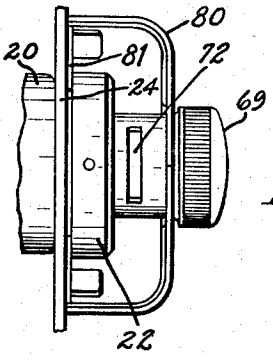


Fig. 9

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LAMP SWITCH

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Application August 8, 1935, Serial No. 35,309

7 Claims. (Cl. 240—8.16)

This invention relates to a functionally and structurally improved dash lamp switch construction capable of use in numerous different associations, but primarily intended for use with an instrument panel of an automotive vehicle.

An object of the present invention is to improve the construction and the arrangement of the parts of switches of the aforementioned character that is neat in appearance and efficient and reliable in operation.

Another object of the invention is to provide improved forms of actuating elements for the switch.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawing wherein a preferred embodiment of the present invention is clearly shown.

In the drawing:

Fig. 1 is a front view of the preferred embodiment of the invention.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a view similar to Fig. 2 but rotated ninety degrees and showing the switch in a circuit closed position.

Fig. 4 is a rear view looking in the direction of arrow 4 of Fig. 2.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 2.

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 3.

Fig. 7 is a sectional view taken on the line 7—7 of Fig. 3.

Fig. 8 is a sectional view taken on the line 8—8 of Fig. 3.

Fig. 9 is a partial elevation of the switch construction looking in the direction of arrow 9 of Fig. 3.

Referring to the drawing, a cup-shaped housing 20 is provided with an integral end wall 21 having an aperture to receive a bushing 22. The bushing is provided with an annular recess 23 within which the end wall is received for attaching the parts together during manufacture, thereby providing an economical construction. The bushing 22 is adapted to pass through an opening of a suitable mounting or support, such as an instrument panel 24 of an automotive vehicle. The bushing 22 is exteriorly threaded to receive a nut or retaining ring 25 which clamps the bushing 22 and with it the housing 20 to the instrument panel 24. To insure that the housing 20 will have only one definite relation with respect to the instrument panel a lug 26 is struck outwardly from the end wall 21 and adapted to extend into a recess 27 provided by the instrument panel.

The bushing 22 is counterbored to provide a shoulder bearing for a sleeve 30. The sleeve has an enlarged portion 31 and a reduced portion 32. Between the portions 31 and 32 a detent shelf is provided which cooperates with the shoulder, provided by the counterbore of the bushing, to prevent movement of the sleeve inwardly of the bushing. The reduced portion 32 of the sleeve is provided with longitudinal slots 34. The sleeve 30 is prevented from moving outward any substantial distance with respect to the bushing 22 by a pair of diametrically disposed prongs 35 struck outwardly and located between a pair of stops 36 provided by inner end of the bushing 22. The prongs 35 are so bent that the sleeve will have a slight axial movement relative to the bushing to permit a free rotary movement of the sleeve within the bushing. The prongs also cooperate with the stops 36 of the bushing to limit rotative movements of the sleeve 30. The reduced portion 32 of the sleeve is also provided with axially extending fingers 37 and are diametrically disposed on the sleeve between the longitudinal slots 34. The sleeve and the fingers 37 provide an actuator or controller for a rotatable contact carrier or block 38 of non-conducting material carried within the housing 20. The block provides notches 39 to receive the fingers 37, thus the block is drivingly connected with the sleeve 30. The block also has notches 40 which are diametrically disposed on the block between the notches 39, by which the block is drivingly connected with tongues 41 of a U-shaped bridging member 42 having bosses 43 to provide contact elements.

An insulating washer 45 is provided with projections 46 which are received by the longitudinal slots 34 in the reduced portion 32 of the sleeve 30. The washer supports a conducting plate 47 which may be fixed to the washer 45 in any suitable manner. A conducting spring 48 has one end thereof engaging the plate 47 while the other end extends through an aperture provided by the block 38 to electrically engage the bridging member 42. The spring 48 operates to urge the bosses 43 of the bridging member against a terminal block 50 and the plate against a contact 68 of an incandescent lamp 65. The bosses 43 are adapted to be received by certain ones of four depressions 51 spaced equally about the axis of the block 50. One of these depressions is provided by a stationary terminal rivet

52. The rivet 52 secures in position a terminal clip member 54. The terminal block 50 may be secured to the housing 20 as by having tongues 55 clinched over the block.

The enlarged portion 31 of the sleeve 30 is provided with diametrically disposed notches 60 to provide tongues 61, one of the tongues 61 has a slot 62 while the other tongue has an aperture 63. The enlarged portion of the sleeve is adapted to receive the incandescent lamp 65, shown in dot and dash lines, having a base provided with suitable bayonet projections or pins. The reduced portion 32 of the sleeve 30, snugly receives the base of the lamp, is provided with bayonet channels 66 having seats 67 which receive the pins of the base. The pins are maintained in the seats 67 by the conducting spring 48 which also urges the plate 47 against the single pole contact 68 of the lamp.

The enlarged portion 31 of the sleeve 30 is adapted to receive the hollow shank of a handle knob 69 to enclose the lamp within the sleeve 30. The hollow shank of the knob is provided with an elongated indentation 70, arranged transversely to the axis of the knob, which is adapted to fit into the slot 62, thus the knob is drivingly connected with the sleeve 30. The hollow shank of the knob is also provided with an indentation 71 and an elongated opening 72. The opening 72 is arranged transversely to the axis of the knob. The indentation 71 cooperates with the opening 63 to hold the knob on the sleeve 30. When the knob is assembled to the sleeve the opening 72 will extend over and across one of the notches 60 of the enlarged portion 31 of the sleeve so that when the knob is moved in a clockwise direction, as viewed from Fig. 1, to actuate the sleeve 30, the sleeve 30 will drive the contact carrier, which in turn will drive the bridging member 42. By turning the knob 69 substantially ninety degrees in a clockwise direction, one of the bosses 43 will engage the terminal rivet 52 to close a circuit, thus causing the lamp 65 to burn and the rays of light from the lamp will be directed through opening 72 upon the instrument panel. When the switch is moved into the circuit closed position, as indicated in Fig. 3, the current will flow from a current source (not shown) through the following elements 54, 52, 42, 43, 47, 68, filament of the lamp to the base and then to ground. When it is desired to open the circuit, the knob 69 may be moved in a counterclockwise direction, thus separating one of the bridging contact bosses 43 from the terminal 52.

The outward appearance of the switch device is improved by a shroud 80. The shroud carries a bracket 81 provided with a suitable slot that passes over the threaded portion of the bushing. The bracket 81 has a notch 82 to receive the end portion of the tongue 26 provided by the housing 20. The notch 82 operates to keep the bracket 81 and the shroud 80 from rotating relative to the panel 24. The bracket 81 is held firmly against the panel 24 by the nut 25.

The front wall of the shroud 80 has an aperture through which the hollow shank of the knob passes to fit over the enlarged portion 31 of the sleeve 30. The knob 69 is also provided with a knurled portion to facilitate the turning of the knob.

While the embodiment of the present invention as herein disclosed, constitutes a preferred form it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

What is claimed is as follows:

1. An actuator for a rotary switch, comprising in combination, a housing, a bushing supported by the housing and carrying a pair of stops within the housing, a shelf within the bushing, a tubular member journaled in the bushing and having a provision extending beyond the stops to effect a driving engagement with a circuit closing mechanism to be actuated, said tubular member also having an annular shoulder and radially projecting members to lie between the stops, the shoulder resting on the shelf to limit the inwardly movement of the tubular member while the projecting members cooperate with the stops to limit the rotary movements of the tubular member and to maintain the tubular member assembled with the bushing.

2. An actuator for a rotary switch comprising in combination, a fixed hollow support carrying stops at one end thereof, a detent shelf within the support, a tubular member journaled in the support and having provisions extending beyond the stops to effect a driving engagement with a circuit closing mechanism to be actuated, said member provided with an annular shoulder and a pair of ears, said shoulder resting upon the shelf and providing a thrust bearing for the tubular member and said ears cooperating with the stops to limit the rotary movements of the tubular member and said ears also operating to maintain the tubular member assembled with the hollow support.

3. In a rotary switch, the combination comprising, a bushing, a pair of stops carried at one end of the bushing, a contact carrier, a tubular member rotatably supported in the bushing and having provisions extending beyond the stops to effect a driving engagement with the contact carrier, and means carried by the tubular member projecting between the stops and cooperating with same to limit the rotary movements of the tubular member, and said means also operating to hold the tubular member against material axial movement of the tubular member relative to the bushing.

4. In a device of the character described, the combination comprising, a housing, a support carried by the housing, a fixed contact carried by the support, a movable contact cooperating with the fixed contact, a bushing supported by the housing, a tubular member rotatably supported within the bushing and having provisions at one end for operating the movable contact and having longitudinal notches extending from the other end, said bushing and tubular member having interengaging formations to permit limited rotary movements of the tubular member relative to the bushing, and said interengaging formations also preventing axial movement of the tubular member relative to the bushing, a lamp carried by the tubular member, and a knob provided with an opening, said knob telescoping over the longitudinal notches provided by the tubular member whereby the rays of light from the lamp will pass through the opening of the knob.

5. In a lamp device adapted to illuminate an instrument panel, the combination comprising, a housing, a terminal support provided with a stationary contact carried by the housing, a movable contact, a bushing supported by the housing, a sleeve rotatably supported in the bushing for rotating the movable contact and for carrying a lamp, said sleeve carrying projections cooperating

with notches provided by the bushing to prevent relative axial movement of the sleeve relative to the bushing while permitting limited rotary movement of the sleeve relative to the bushing, a resilient member for electrically connecting the lamp with the movable contact, and said resilient member operating to urge the movable contact toward the terminal support, and means closing one end of the sleeve, said means having a driving engagement with the sleeve to actuate the sleeve in one direction of rotation to close a circuit and causing the lamp to burn, said closing means and sleeve having provisions communicating with each other to provide a window whereby the rays of light will pass through the window to illuminate the instrument panel.

6. A lamp device adapted to be mounted on an instrument panel, comprising in combination, a housing, a terminal support provided with a stationary contact carried by the housing, a bushing carried by the housing, a sleeve having spaced longitudinal notches extending from one end of the sleeve and rotatably supported in the bushing, said bushing and sleeve having interengaging formations to permit limited turning movement of the sleeve relative to the bushing and preventing relative axial movement of the sleeve relative to the bushing, a floating contact supported within the housing and adapted to be rotated by the sleeve to engage the stationary contact, a lamp supported within the sleeve, resilient means for electrically connecting the floating contact with the lamp and operating to urge the floating contact against the terminal support, and a knob provided with an illumination opening and having a driving engagement with the sleeve to rotate same and the floating contact in one direction to close a circuit whereby the rays of the light from the lamp will pass through one of the longitudinal notches of the sleeve and the opening of the knob to illuminate the instrument panel.

7. A lamp device adapted to be mounted on an instrument panel, comprising in combination, a housing, a terminal support provided with a stationary contact carried by the housing, a bushing, a socket member rotatably supported in the bushing, a floating contact yieldably supported within the housing and adapted to be rotated by the socket member to engage the stationary contact, a lamp carried by the socket member, resilient means for electrically connecting the lamp with the floating contact and for urging the floating contact against the terminal support, and a knob provided with an illumination opening and having a driving engagement with the socket member to rotate the same and the floating contact into engagement with the stationary contacts whereby the rays of light will pass through the opening to illuminate the instrument panel.

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