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SWITCH AND HOUSING THEREFOR
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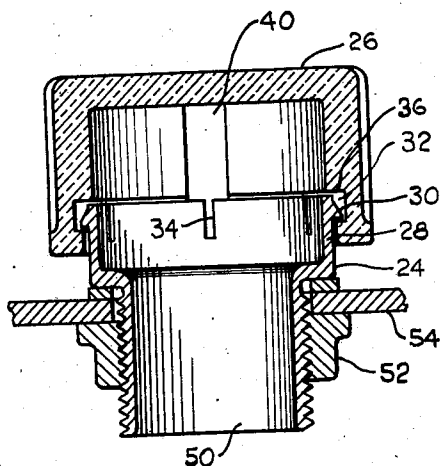


Fig. 1

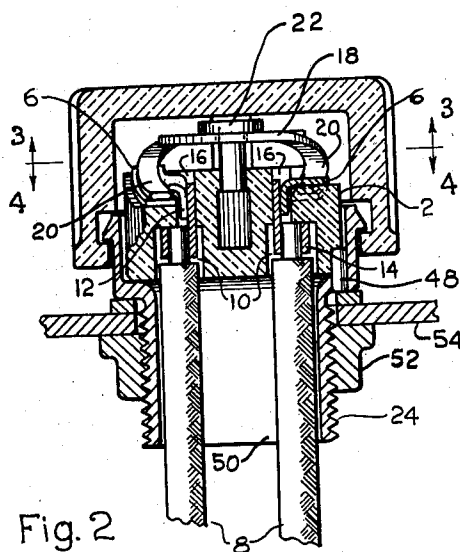


Fig. 2

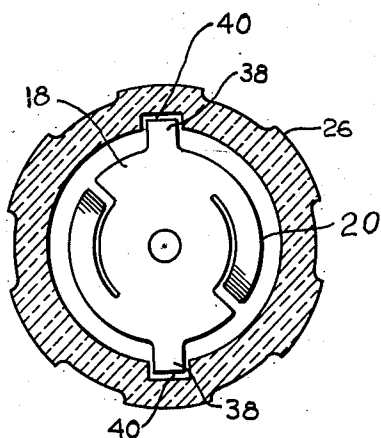


Fig. 3

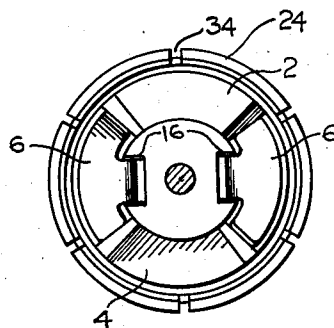


Fig. 4

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SWITCH AND HOUSING THEREFOR

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7 Claims. (Cl. 200—155)

My invention relates to switches and particularly to switch housings and to the combination of such housings with the elements of the switch.

Switches for use in lighting circuits and elsewhere are frequently formed with an insulating base upon which are mounted one or more stationary contacts adapted to be engaged by a movable contact. Heretofore it has been usual for the base on which the contacts are mounted also to be formed with means thereon for securing the switch to a support, and in addition to mount the movable contact and the switch actuating member on the base. Although constructions of this character are satisfactory for many purposes canopy switches and other switches which are small present unusual difficulties due to the crowding of the elements into a small space. Furthermore when the switch is small there is a tendency for the mounting of so many elements on the base to weaken the construction and this tendency increases considerably as the size of the switch is reduced.

In accordance with my invention these difficulties and disadvantages of the constructions of the prior art are overcome and a switch and switch housing are provided in which the elements are of simple and sturdy construction even when very small and at the same time the parts are capable of being easily manufactured and assembled. Preferably I employ housing members for the switch which are formed independently of the base on which the switch contacts are mounted and the members making up the housing are connected together independently of the base. This construction is of particular value in that the switch may be mounted and tested prior to placing the switch actuating member or cover thereon and when assembled the parts are securely held in position so that dislocation or improper operation of the switch is prevented.

One of the objects of my invention is to provide a switch and switch housing embodying a limited number of elements capable of being easily and economically manufactured and assembled.

Another object of my invention is to provide a switch housing comprising members one of which serves to mount the switch on a support and another of which serves to actuate the switch.

A further object of my invention is to provide a switch having a contact movable to engage a stationary contact on an insulating base in which the movable contact is actuated by means supported independently of the insulating base.

A further object of my invention is to provide

a switch having a housing formed of members connected to each other independently of the base on which the switch contacts are mounted.

These and other objects and features of my invention will appear from the following description thereof in which reference is made to the accompanying figures of the drawing illustrating a typical embodiment of my invention.

In the drawing:

Fig. 1 is a vertical sectional view of a preferred form of switch housing embodying my invention.

Fig. 2 is a view similar to Fig. 1 with the elements of a switch located in place in the housing.

Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 2 looking upward into the actuating member of the housing showing one form of bridging contact used in a typical form of switch, and

Fig. 4 is a plan view taken on the line 4—4 of Fig. 2 looking downward to show the insulating base and stationary contacts of a switch embodying my invention.

In the form of my invention illustrated in the drawing the switch comprises a base 2 formed of insulating material and provided with ratchet faces 4 on the upper surface thereof. Stationary contacts 6 are located on alternate faces of the ratchet and are connected to line wires or leads 8 extending into recesses 10 in the lower surface of the base.

The base preferably is formed with four ratchet faces, two of which have contacts 6 thereon and the other two are blank forming insulating areas. The contacts 6, as shown, are in the form of arcuate metallic plates with a downwardly extending lug 12 on the inner edge thereof to which is secured a connecting member 14 attached to the end of one of the line wires 8. The lug 12 engages the member 14 within the opening 16 in the base and may be secured to the member by soldering or otherwise as desired. Similarly the connecting member 14 may be secured to the line wire 8 in any suitable manner to insure a good electrical contact between the parts.

Completion of a circuit through the stationary contacts 6 is effected by a bridging contact 18 formed with downwardly inclined spring contact fingers 20 located over the ratchet faces 4 and in position to engage the stationary contacts. The bridging contact is rotatably mounted on the pin 22 carried by the base 2 and positioned centrally thereof. Rotation of the bridging contacts therefore serves to bring the contact fingers 20 alternately into engagement with the stationary contacts 6 on the ratchet faces and with the

blank faces of the ratchet so that the circuit controlled by the switch is alternately completed and broken with each rotation of the bridging contact through an angle of 90 degrees.

5 The switch construction described above does not include any housing or any means for mounting the switch on a support or for actuating the movable contact. In accordance with my invention a housing is provided which includes a
10 mounting member 24 and an actuating member 26 rotatably connected together independently of the base which carries the switch contacts. As shown, the mounting member 24 is formed with an outwardly and upwardly extending portion 28 having an annular bead or flange 30 adjacent the upper edge thereof. The actuating member 26 is formed with cooperating means for preventing separation thereof from the mounting member after assembly of the parts and for
15 this purpose is provided with an annular recess 32 adapted to receive and engage the bead 30 on the mounting member. In order to permit ready application of the actuating member to the mounting member the latter is provided with a
20 number of spaced cuts 34 to give resiliency thereto. The approaching faces of the bead 30 on the mounting member and of the lower edge of the actuating member below the recess 32 are rounded or beveled to enable the parts easily
30 to be forced into telescoping relation with the bead 30 extending into the recess 32. The inner face of the actuating member is formed with an overhanging shoulder 36 above the recess 32 to prevent the actuating member from being forced too far down on the mounting member. The two members of the housing are thus rotatably connected together independently of the base on which the contacts are mounted.

In order that rotation of the actuating member will actuate the switch, the bridging contact 18 is formed with means such as the outwardly projecting extensions 38 engaging in vertical grooves 40 on the inner face of the actuating member. The bridging contact is thus movable with the actuating member so that rotation of
45 the latter moves the spring contact fingers 20 of the bridging contact over the ratchet faces on the base and into and out of engagement with the stationary contacts. The arrangement described permits application of the actuating member to the switch after the switch and mounting member have been assembled and secured in place. The switch may therefore be tested while in position so that if there should be
50 any faulty installation or construction of the switch this may be discovered and corrected before application of the actuating member thereto.

The mounting member, by which the insulating base 2 of the switch is supported, is provided within the upper portion 28 with suitable means
60 for preventing rotation of the base with respect to the housing. For this purpose a pin 48 carried by the mounting member engages a complementary recess in the base 2 whereby the base is held in fixed position so that accidental displacement of the elements of the combination cannot occur.

The lower portion 50 of the mounting member is preferably tubular in form and externally threaded to receive a nut 52 for securing the housing and switch to a support or fixture 54. The line wires or leads 3 connected to the stationary contacts on the base extend through the tubular portion of the mounting member thereby
75 protecting the conductors against possible abra-

sion or damage in assembling or using the device.

The construction of the housing and switch elements described above is simple and strong and all of the parts may be easily manufactured and assembled. The arrangement permits the switch elements to be made and assembled separately from the housing members and in the event it should be desired to remove the switch for inspection or repair this may be done without removing the mounting member from the support or fixture.

The switch elements illustrated and described herein are typical of those which may be used in devices embodying my invention but various other forms and arrangements of the fixed and movable contacts obviously may be employed. Furthermore the construction of the housing members and the means for rotatably connecting the same may be varied considerably without departing from my invention. It should therefore be understood that the form of my invention herein illustrated and described is intended to be illustrative of my invention and is not intended to limit the scope thereof.

What is claimed is,

1. A canopy switch including an insulating base, fixed and movable switch contacts mounted on the base, an inverted cup-like cover adapted to telescope over the base and having means for engaging with the movable switch contact for operating the same, and means for rotatably holding the cover over the base.

2. A canopy switch having in combination a stationary contact mounted on an insulating base, a movable contact carried by said base and adapted to engage said stationary contact and a housing comprising a member nonrotatably supporting said insulating base, a second member in the form of an inverted cup shaped cover closed at the top and extending downwardly about the first member, said second member being rotatable with respect to the first and having means thereon engaging the movable switch contact to actuate the same, and means preventing separation of the members of the housing.

3. A canopy switch having in combination a base formed of insulating material having contacts thereon, a rotatable housing member for said switch, a bridging contact movable with said housing member to engage the contacts on the base, a tubular mounting member for securing the switch to a support, conductors extending through the mounting member and connected to the contacts on said base an enlarged recessed portion formed on the mounting member and open at the top for receiving and holding said base, and means carried by the mounting member for preventing separation of the rotatable housing member from the mounting member.

4. A canopy switch including an insulating base, fixed and movable switch contacts mounted on the base, an inverted cup-like cover adapted to telescope over the base and having means on the inner side thereof to slide over and engage the movable contact when the cover telescopes with the base to be interlocked therewith, thereby to compel rotation of the movable contact of the switch with the cover, and means for rotatably holding the cover over the base.

5. A canopy switch including an insulating base, fixed contacts on the base, a rotatable switch contact, a pin carried by the base for rotatably securing the movable switch contact to the base and in operative relation to the fixed contacts,

and an inverted cup-like cover adapted to telescope over the base and having means on the inner side thereof to slide over and engage the movable contact when the cover telescopes with the base to be interlocked therewith and thereby compel rotation of the movable contact of the switch with the cover, and means for rotatably holding the cover over the base.

6. A canopy switch including an insulating base, fixed and movable switch contacts mounted on the base, a pair of cup-like members for receiving and housing said base and the switch contacts, yielding retaining means on one of said members and the latter also having a passage for line wires connected to the fixed contacts, and the other of said members having means for engaging with the movable switch contacts and also having means for engaging the said yielding retaining means to rotatably interlock both members,

whereby relative rotary movement of said members will cause the switch contacts to engage and disengage.

7. A canopy switch having in combination stationary and movable contacts, and a housing for the switch comprising a recessed mounting member for receiving and holding the switch, said mounting member being formed with a tubular stem in the base thereof, line wires extending through said tubular stem and connected to said switch and an inverted cup shaped cover member closing the recess in said mounting member and formed with means thereon for effecting movement of the movable switch contact, said mounting member and cover member being provided with means for preventing separation thereof.

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