

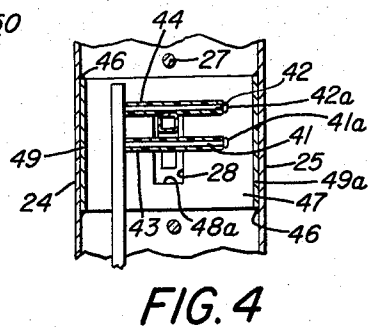
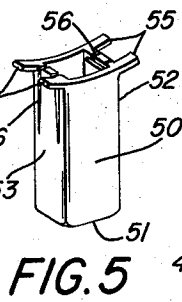
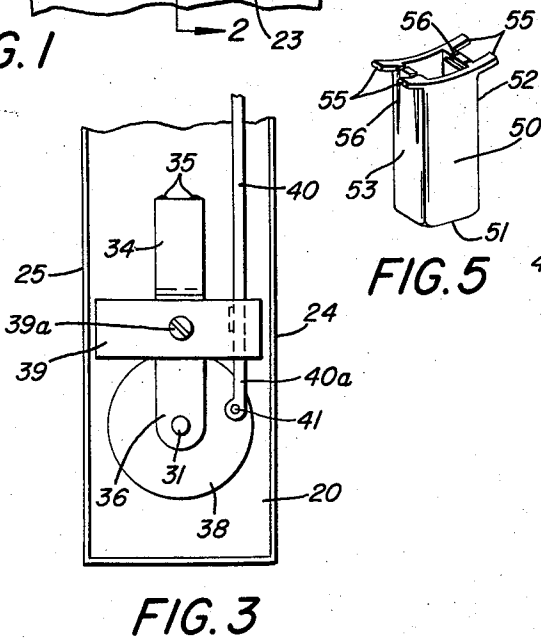
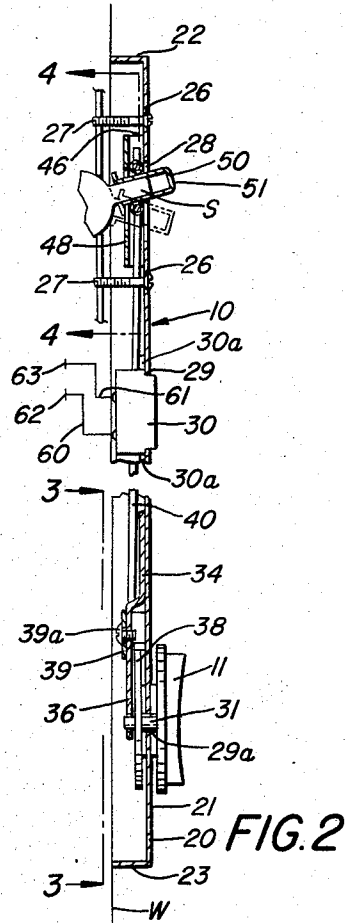
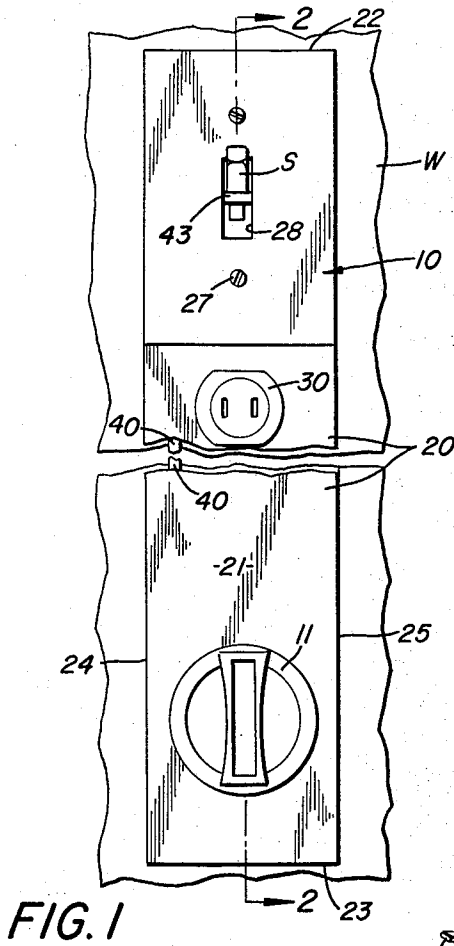
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EXTENSION OPERATOR FOR LIGHT SWITCH

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EXTENSION OPERATOR FOR LIGHT SWITCH

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7 Claims. (Cl. 200—172)

This invention relates to devices for actuating light or other electrical switches, and in particular has reference to an extension type of actuator switch that permits operation of the switches by a small child, for example.

In the known prior art, extension actuators of this general type have generally been of a type wherein an extension rod was provided with a slot that was received around the switch button. This rod was then mounted in a housing so that upon movement of the same, the position of the switch button was changed to accordingly turn the electrical connection either on or off, as the case may be. A representative patent showing this type of construction is United States Patent 2,668,456, issued February 9, 1954, to J. V. Meistrell.

While actuators of this general type are satisfactory in certain ideal installations, it has been found that the same are prone to jam or otherwise bind during usage. Specifically, it has been found that in cases where the switch-button is either oversize or undersize, that improper functioning of the device will result, since it is apparent that the actuating rod employed must move towards and from the wall surface during actual use thereof.

It has been found that the above disadvantages of the known prior art can be obviated by providing a separate cap or cover for the actuating button of the switch involved. The use of such a cap or covering will accordingly render the size of the switching member uniform. Additionally, it has been found that if the actuating rod that is employed to move the switch member between various positions is engaged with this cover cap under a rolling or sliding type of contact, that improved results will occur since the above type of construction will completely eliminate the conventional binding that frequently occurs in the prior art devices.

It has been further discovered that the overall usability of the device can be greatly enhanced if the same is provided with an electrical outlet as a component part thereof, with this electrical outlet being provided with wires that can be attached to the switch box, per se, so as to permit energization of the same upon actuation of the switch. In this manner, and assuming the device was desired for use in a child's room, a night light could be attached in the outlet and the connections arranged so that when the wall switch was in the "off" position, the night light would be energized.

It accordingly becomes the principal object of this invention to provide an improved type of extension actuator for wall switches that is characterized by a free and easy type of operation so that the same can be continuously and repetitively used without the occurrence of binding or other interfering forces being present.

It is a still further object of this invention to provide an extension actuator of the type described that is characterized by the presence of independent outlet means associated therewith, with the independent outlet means operating in timed co-action with the primary switch means upon operation of the device.

These and other objects of the invention will become

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more apparent upon a reading of the following brief specification, considered and interpreted in the light of the accompanying drawings.

Of the drawings:

5 Figure 1 is a front elevational view of the invention installed on a wall surface.

Figure 2 is a sectional view taken on the lines 2—2 of Figure 1.

10 Figures 3 and 4 are sectional views taken on the lines 3—3 and 4—4 of Figure 2.

Figure 5 is a perspective view of the improved cap.

Referring now to the drawings, and in particular to Figures 1 and 2 thereof, the improved extension operator, generally designated by the numeral 10, is shown mounted on a wall surface W; the arrangement being such that upon rotation of a turning knob 11, the switch member S will be moved between the full and chain-dotted line position of Figure 2.

Considering first the structure of the actuating member 10, it will be seen that the same includes an elongate housing 20, having a front wall 21, top and bottom walls 22 and 23, and opposed side walls 24 and 25, with the projecting ends of the wall surfaces 22, 24 and 25 preferably lying in a common plane so as to permit flush reception of the housing 20 against the wall surface W as shown in Figures 1 and 2. In this regard, the front surface 21 is provided with the usual apertures 26, 26 through which bolts or screws 27, 27 can be received to facilitate attachment of the housing 20 with respect to the wall W, it being understood that the spacing and location of these apertures is such that the ends of the bolts 27, 27 will be received in the conventional tapped apertures provided in the switch member S. In addition to the aforementioned openings, the front wall 21 is further provided with a rectangular opening 28 within which the switch member S can be received, while additional openings 29 and 29a permit reception of the outlet 30 and shaft 31, with the outlet 30 having the usual ears 30a, 30a that facilitate attachment of the member 30 to wall section 21 in known manner.

To the end of mounting the actuating portion of the member 10 with respect to the housing 20, the lowermost portion of the wall surface 21 is shown provided with a strap member 34 (see Figure 3) with this strap member being attached, as by weld 35, to the internal face of the wall section 21 and with the strap 34 being off-set throughout its longitudinal length so as to have an end portion 36 that is spaced from the wall 21, as clearly shown in Figure 2 of the drawing. In this manner, one end of shaft 31 can be rotatably journaled within an appropriate aperture of portion 36 and the conventional turning knob 11 can be mounted in known fashion on the opposed axial end thereof.

Also received around the shaft 31 is a flat disc 38 that is illustrated as being circular in plan so as to permit the lowermost end 40a of actuating rod 40 to be eccentrically pinned thereto by pin 41 (see Figure 3). In this manner, rotation of knob 11 will result in substantially up-and-down movement (see Figure 3) of the actuating rod 40, with the rod 40 being maintained adjacent wall section 21 by a cross-strap 39 that is secured to the plate 34 by screw 39a.

Referring next to Figure 4 for a consideration of the co-action between the actuating rod 40 and the switch means S, it will be seen that the upper end of rod 40 is provided with a pair of right-angle rod members 41 and 42 that extend normally of the rod 40 in parallelism with each other. Surrounding these rod members 41 and 42, are sleeves 43 and 44 respectively, with these sleeves preferably being of nylon, vinyl, or other low-friction plastic material so as to freely turn on the shafts 41 and 42. As shown in Figure 4, the outboard ends of the

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shafts 41 and 42 may be peened, as at 41a and 42a to insure retention of the sleeves 43 and 44 thereon, and it is also to be understood that grease or other lubricant may be provided between the shafts and sleeves received thereon, so as to facilitate free rotational movement of the same.

In addition to the aforementioned component parts, the housing 20 also defines a transverse plate 47 that extends, as best shown in Figure 4 of the drawings, between opposed wall surfaces 24 and 25, with the base portion 48 of this plate being spaced from the wall W by legs 49 and 49a, as shown in Figure 2. An opening 48a is provided in base section 48 for the purpose of accommodating the switch means S, with the entire member 47 preferably being secured to housing 20 by welds 46, 46.

Referring next to Figure 5 for a detailed consideration of the cover cap 50, it will be seen that the same is of generally hollowed shape, conforming in contour to the three-dimensional outline of the conventional switch member S, and in this manner, the same may be telescoped over the same as shown in Figure 2.

Accordingly, the switch member 50 is shown as having wall surfaces thereof arranged in rectangular form to provide a surrounding enclosure for the switch S with end wall 51 limiting the extent of telescoping of the member 50 on switch S. Additionally, and for the purpose of retaining the cover 50 in place during use thereof, the opposed wall sections 52 and 53 thereof are provided with a series of projections 55, 55, with these projections being received behind the base section 48 of plate member 47 in assembled condition of the device. Additionally, and as best shown in Figure 5, certain of the wall sections are provided with slits 56, 56, with such slits being shown provided on the wall sections 52 and 53. In this fashion, the cover can be spread over the switch S during telescoping and the inherent recovery properties of the same will cause a tight frictional fit between the cover 50 and switch S. While two such wall sections are shown slit in the preferred embodiment, it is, of course, to be understood that additional slits could be provided in the remaining wall sections, if desired, or that the slits could be eliminated if fit was not of consideration.

Referring next to Figures 1 and 2 for a consideration of the outlet 30, it suffices to say that the same is of conventional construction and is provided with lead lines 60 and 61 that respectively connect with contacts 62 and 63, that are provided on the switch means. In this regard, the connections can be arranged so that upon movement of the switch S to its "on" position, the switch 30 will be de-energized and vice versa.

In use or operation of the improved device, it will first be assumed that the component parts of the actuating device 10 have been assembled as indicated in the drawing. In this regard and in order to use the same on a conventional wall switch, for example, the user merely removes the conventional cover plate provided on the wall surface and first makes a connection between the member 30 and the contact points 62 and 63 of the switch. When this electrical connection has been made, it is merely necessary that the cover 50 be slipped over the switch S and telescoped thereon to the position of Figure 2. At this point, the actuating arm may be operated so that the sleeves 43 and 44 are passed over the cover 50 and when this has been accomplished, the entire housing 20 can be laid flush against the wall and attached thereto by positioning of the bolts 27, 27 in the apertures of the switch means. At this time, the device is ready for use and it is believed apparent that upon an approximate 90-degree rotation of the knob 11, that the sleeves 43, 44 will be moved vertically of housing 20 and wall W to cause an equivalent movement of the switch S to the chain-dotted line position of Figure 2. During this movement, the sleeves 43 and 44 will roll against the external surface of cover 50 and it will also be

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noted that the arm 40 is free to float a certain amount with respect to the distance thereof from the wall surface 21 so that all possibility of binding will be eliminated. Rotation of the knob 11 in the opposite direction will then return the switch S to the full-line position.

To operate the switch 30, it is merely necessary that an appliance or light be plugged therein so that upon movement of the switch S to its "off" position, for example, the switch 30 will be energized to light a "night light."

It will be seen from the preceding paragraphs how there has been provided a new and improved type of extension actuator for electrical switches. Specifically, it has been shown how the presence of a floating actuating arm greatly improves the operating conditions of the device since it permits the arm to adjust in spacing from the wall and thereby avoids binding, with the result that a trouble-free type of operation is at all times present. It has been further shown how the use of the improved and novel cover cap insures that the device can be adapted to all types of switches regardless of the size of the switching member, with the cover cap rendering the switching means uniform in all installations.

While a full and complete disclosure of the invention has been set forth in accordance with the dictates of the patent statutes, it is to be understood that the invention is not intended to be so limited. For example, it is believed apparent that the device could function without the presence of the auxiliary switch 30, and similarly, that other means could be employed for obtaining reciprocal movement of the actuating rod 40.

Accordingly, modifications of the invention may be resorted to without departing from the spirit hereof or the scope of the appended claims.

What is claimed is:

1. A switch operating mechanism for use with a wall-type switch having a projecting pivotal switch member; comprising a cover cap received over said switch member; a housing receivable against said wall in covering relationship to said switch and having an opening therein through which said switch member can operatively project; and an actuating arm carried by said housing in shiftable relationship therewith; means on said housing spacing said arm from said wall; and at least one sleeve member carried by said arm in rolling contact with the external surface of said cover cap whereby said switch member will move between various switching positions upon movement of said actuating arm.

2. A switch operating mechanism for use with a wall-type switch having a projecting pivotal switch member; comprising a cover cap received over said switch member; a housing receivable against said wall in covering relationship to said switch and having an opening therein through which said switch member can operatively project; and means for preventing disengagement of said cover cap from said switch member when said housing is in place on said wall; an actuating arm carried by said housing in shiftable relationship therewith; a transverse plate on said housing spacing said arm from said wall; and at least one sleeve member carried by said arm in rolling contact with the external surface of said cover cap whereby said switch member will move between various switching positions upon movement of said actuating arm.

3. A switch operating mechanism for use with a wall-type switch having a projecting pivotal switch member; comprising a cover cap received over said switch member; a housing receivable against said wall in covering relationship to said switch and having an opening therein through which said switch member can operatively project; and an actuating arm carried by said housing in shiftable relationship therewith; a transverse plate on said housing spacing said arm from said wall; and at least one sleeve member carried by said arm in rolling contact with the external surface of said cover cap whereby said switch

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member will move between various switching positions upon movement of said actuating arm.

4. A switch operating mechanism for use with a wall-type switch having a projecting pivotal switch member, comprising a cover cap received over said switch member; a housing receivable against said wall in covering relationship to said switch and having an opening therein through which said switch member can operatively project; an actuating arm carried by said housing; a transverse plate on said housing spacing said arm from said wall; and at least one sleeve member carried by said arm in rolling contact with the external surface of said cover cap; and means for oscillating said actuating arm longitudinally of said housing whereby said switch member will move between switching positions upon oscillation of said actuating arm.

5. A switch-operating mechanism for use with a wall-type switch provided with contact points and having a projecting pivotal switch member operable between "on" and "off" positions, comprising a cover cap received over said switch member; a housing receivable against said wall in covering relationship to said switch and having an opening therein through which said switch member can operatively project; an actuating arm carried by said housing; a transverse plate on said housing spacing said arm from said wall; and at least one sleeve member carried by said arm and being in rolling contact with said cover cap; an auxiliary outlet carried by said housing and electrically

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connected with said contacts of said switch; means for preventing disengagement of said cover cap from said switch member when said housing is in place on said wall, and means for oscillating said actuating arm longitudinally of said housing whereby said switch means will be moved between said "off" and "on" positions thereof upon said oscillation.

6. The device of claim 5, further characterized by the fact that said auxiliary outlet is alternately energized and de-energized during oscillation of said arm.

7. A cover cap for the pivotal switching member of a wall-type switch, comprising an elongate hollow member open at one end for telescopic reception over said switching member; said open end having at least one projecting flange extending outwardly therefrom and the walls of said member are provided with slits that extend longitudinally from said open end to accomodate tight frictional contact between said cap and said member.

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