United States Patent [19]

Schneidinger

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[54] **LIGHT SWITCH TIMING DEVICE**

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[52] **U.S. Cl.** ..... **335/59,** 200/33 B

[51] **Int. Cl.** **H01h 43/02**

[58] **Field of Search** ..... 335/59, 60, 61, 62, 335/63, 64, 65, 69; 200/33, 38, 39, 172 A; 317/DIG. 9; 307/114; 34/53

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[57] **ABSTRACT**

This is an actuating device to be attached to a wall-mounted switch plate for actuating a light switch in a room or other place at a predetermined time interval either for turning such light on or off, or a combination. The device is particularly characterized in that it may mount flush into the wall and in a standard light box receptacle or it may be attached to an existing light switch. It is further characterized by a simple, manual override switch.

1 Claim, 6 Drawing Figures

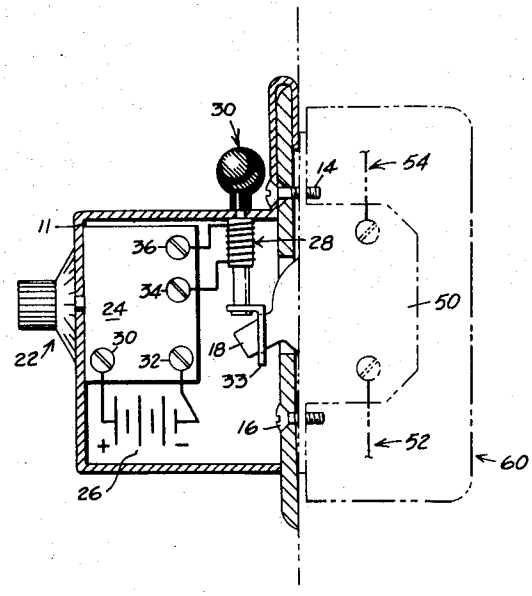


FIG. 1.

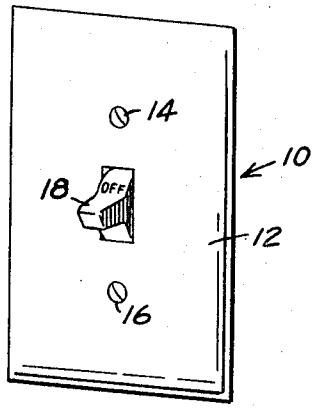


FIG. 2.

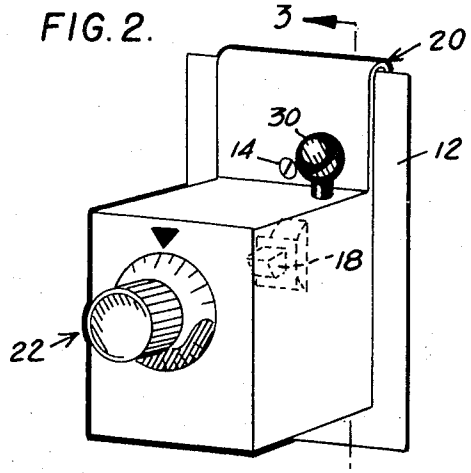


FIG. 3.

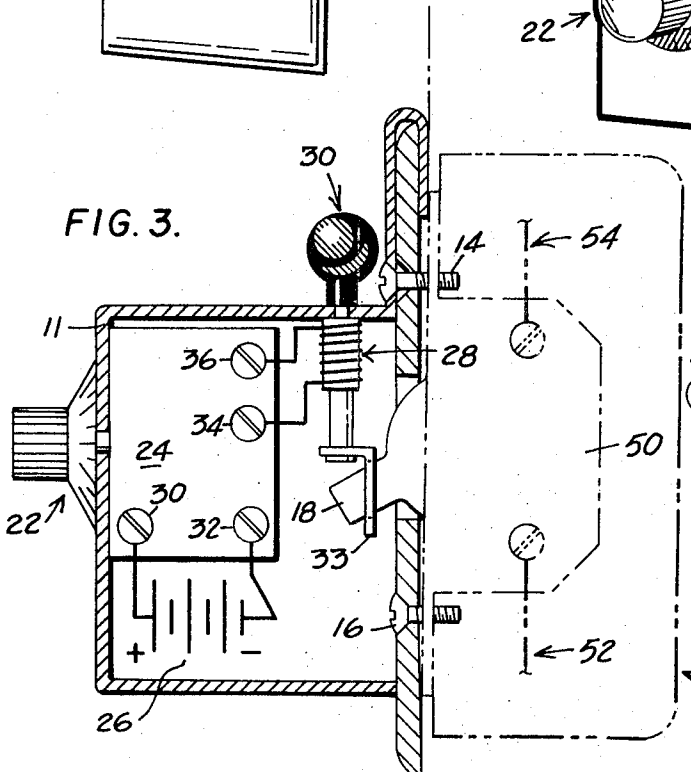


FIG. 5.

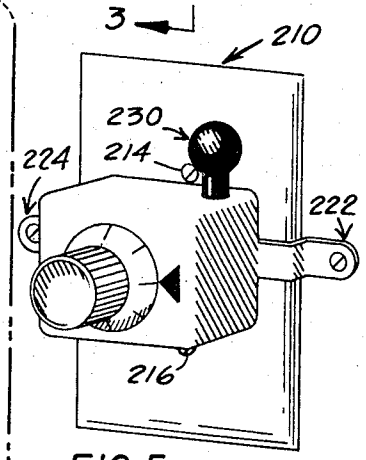


FIG. 6.

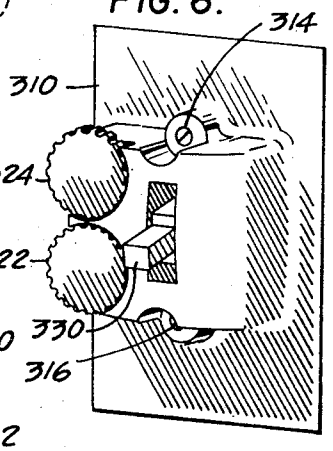
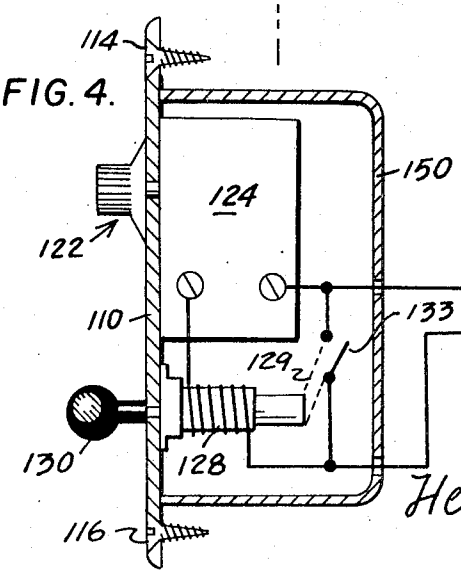


FIG. 4.



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LIGHT SWITCH TIMING DEVICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention lies within the general field of electrical lighting switches and more particularly in the field of a device to actuate electrical light switches at a predetermined time interval and is particularly further characterized in falling within the field of an attachment to existing light switches in existing buildings.

2. Description of the Prior Art

For many years, timing devices have been made to actuate electrical currents for such purposes as turning lights on and off, for actuating radios and other utensils, and the like. All of such inventions are characterized by the necessity of an independent connection such as an independent time actuating device into which a light or the utensil is connected, or a separate timing device connected into a circuit which is the sole means of actuating the light or other device being activated. The present invention includes a device to cooperate with and, in combination with, to activate a customary wall switch upon the wall in existing buildings and the like. There is no prior art to my knowledge in this specific field of cooperating with and combining with light switches of a customary nature in houses and in this respect, there is no prior art.

SUMMARY OF THE INVENTION

There is a constantly increasing demand, desire, and requirement, for protective devices and for security in all fields, as well as for convenience.

In the past, there have been devices designed to turn on lights of one sort or another about buildings at various times of day or to be actuated by approaching darkness and to be deactivated by approaching light of day.

There are also timing devices which can be used and in which, for example, a lamp may be inserted for such purposes.

In the customary home, however, most customarily used lights are activated by a switch mounted upon, or within, a wall or the like. There has not, so far, been a device developed to activate those customarily used lights and, thus one who is intent upon intrusion, may recognize the artificiality of protective lights being lighted at various times.

Up until now, it has been impractical to activate a light or all lights which are toggle switch actuated by an automatic timing or light-sensitive device.

I have approached this problem in a manner by which I am able to provide a device which is easily and safely installed by a homeowner without large expense, and which can activate individual, normally used, lights within a home by a cooperative arrangement such customary switches as are found in most homes. I have accomplished this by combining a timing device and a switch-actuating device controlled by the timing device together with a power supply and which is so designed and constructed as to cooperate with an existing switch plate (which are virtually standard throughout the United States).

It has been my purpose, therefore, to provide a device which will not interfere with a normal switch operation, but will cooperate with the same, and yet have an override for either a manual or automatic operation.

It is an object of this invention to provide a timing device to actuate customary electric wall switch;

It is a further object of this invention to provide a means for intermittently actuating and deactuating an electric wall switch;

It is a further object of this invention to provide a device as heretofore described which cooperates with the existing wall switch;

It is another object of this invention to provide a device as described which can be actuated by changing conditions of light or the like.

The foregoing and other objects and advantages of this invention will be clear to those skilled in the art upon reading the description of a preferred embodiment in conjunction with the appended drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective of a customary electric light wall switch;

FIG. 2 is a perspective of the same device of FIG. 1 with the invention of this application shown in place and the switch-actuating lever itself shown in phantom;

FIG. 3 is an enlarged sectional view through 3—3 of FIG. 2;

FIG. 4 is an alternate embodiment of the device of this invention in partial section and partial schematic;

FIG. 5 is a perspective of an alternate embodiment of the device of this invention; and

FIG. 6 is a perspective of another alternate embodiment.

DESCRIPTION OF A PREFERRED EMBODIMENT

It will be clear that a basic light switch and face plate **10** comprises the switch toggle **18**, the face place **12** with the toggle protruding through an appropriate opening therein, and screws **14** and **16**, which hold the face plate to the switch box in the wall, which is well-known in art.

In FIG. **2** there is seen the face plate **12** covered by the device of this invention, and in which an intregal part of the case is a generally U-shaped hanger with an appropriate hole to accommodate screw **14** as is best illustrated in FIG. **3**.

The case **11** may be formed of plastic, metal or any other suitable material and contains therein the power unit **26** which may be a battery or the like suitable to actuate the timing device and solenoid hereinafter described.

The timing device **24** is of a customary electronic timing device such as a capacitor-type timer which is well-known in the art. There are many electrical timers and any would be suitable.

Likewise, the timer **24** may be a spring-actuated timer such as, for example, the type of timer used in photographic work or an ordinary clock work timer such as an alarm clock type mechanism.

The two leads from the battery or power source are connected into the timer at **30** and **32** and two leads out of the timer at **34** and **36** take power to solenoid **28**. The solenoid **28** is preferably a "push-pull" type solenoid or lineal actuator so that it may actuate both to turn on the switch or to turn it off. An override knob **30** is provided and a bracket **33** which can be a U-shaped-offset attachment to the end of the solenoid core as roughly shown, and, as is well understood in the art, completes the mechanical arrangement to the switch.

In phantom on FIG. 3 are shown the two electrical leads **52** and **54**, the switch itself **50** and the customary switch mounting box **60**.

As previously indicated, all of the elements shown may be replaced by spring-actuated, lever-actuated, or other similar mechanical devices all of which are well-known in the art and all of which are well-known and well-developed for the art of timing.

In the particular illustrations, the control dial **22** (and in FIG. **4**, **122**) is a simple representation of a control dial such as is customarily used with such devices to set a time for the actuation of the unit. As is well-known in the art, there may be two control dials, one setting a time for actuation and one setting a time for a reverse actuation. Likewise, the timer itself may be so constructed as to be only actuated once and in its own mechanism (not shown) to reverse its actuation after a given elapsed time. Likewise, there may be two or more control dials or settings for control of the timing device. Some timers become very complex and such timer can be used within this device, whether or not they are electrically operated, spring operated, or actuated in some other manner.

It will also be understood that the device can be operated by manually making an initial setting by utilization of the knob **30**, and then allowing all further settings or changes of position of the switch toggle **18** to take place by the use of the timer.

Although not commented upon at great length, the override knob **30** is of importance in that it is frequently desirable to override, or cancel, the action of the automatic timing device because of changed or unusual circumstances. Many times timers are so constructed, that their entire timing cycle must be altered by use of the control knob, or otherwise, in order to override the single cycle concerned. In the case of my device, I make it possible, by the simple addition of the override knob to override any given cycle without changing the basic configuration.

Also, although only commented upon briefly, the cooperative arrangement of the entire unit, with a wall plate, requiring the removal of only one mounting screw on the face plate is of importance. In this manner, an individual who is not technically qualified to work upon a light switch in safety, may install the device on one or more electrical switches already in an older building. He may also move such device from one switch to another as desired to create a changing effect within the house and yet with a simple, "non-professional" approach.

FIG. **4** illustrates an alternate arrangement in which the customary wall box switch is replaced by a new switch which mounts within the wall cavity said switch being generally **150**, comprising a case as shown in partial section together with an appropriate timing device **124**, solenoid **128**, override knob **130**, face plate **110**, and electrical leads **130** and **132**, together with switch **133**. The switch **133** may be actuated by the solenoid **128** and this connection is shown by phantom lines **129**. The switch will go to the light or the like being actually activated, and the current in the regular line will activate and actuate the timing mechanism **124**. While the device of FIG. **4** is of importance in those instances where it may be desired to mount the entire device within the wall, it is of somewhat less interest to a homeowner or other individual who may wish to do the work without requiring a professional electrician. FIG. **4** shows a basic schematic arrangement, lacking in detail, since the details are well-known in the art. In this case, arrangements are made for the electrical current available at **130** and **132** to be utilized to activate the timer. The electrical current, it will be noted, also is used as activation for the solenoid when the line **130** is closed within the timer.

The switch **133** is simply used to control the light, or other device operated by electricity. In this case, one portion of the electrical energy required for the light, or other device, is directed through the switch when it is closed (details not shown) as will be understood. It is likewise clear that the same effect may be achieved within a wall-mounted unit, by substituting a mechanical timer **124** and/or mechanical actuator for **128**. In these cases, once again, a control knob **130** is utilized by direct connection to the actuating device in order to provide for manual override without effecting any permanent settings which may have been made in the device.

FIG. **5** illustrates in perspective an alternate embodiment of the device in which the device has been so constructed as to have two tabs **222** and **224** connected to the housing **220** of the device in such manner that screws or the like may be used to fasten the device to the sides of the wall, or in other convenient manner, without interfering with the switch plate at all, not even the removal of the one screw.

It will be clear that the mechanism within the housing **220** will be essentially the same as the mechanism within the other housings shown and described.

FIG. **6** illustrates a switch plate which becomes an alternate embodiment of this device in which the switch plate **310** has formed as an intregal part thereof timing device generally **320** and two standard-spaced holes for screws **314** and **316**.

Within the device **320**, the mechanism will be generally the same as shown although the override mechanism may preferably be a switch **330** protruding from the front of the case **320**. The standard switch lever **318** will be engaged substantially as heretofore described and shown in the other embodiments.

In this instance, the entire existing face plate would be removed and the new face plate **310** carrying the entire mechanism would merely be replaced and would serve the purpose of making a neater and simpler installation.

The mechanism may be the same as any of those heretofore described.

As heretofore mentioned any of the mechanisms may have two setting dials for example **322** and **324** or one as shown in the other examples or no setting dials having the entire setting arranged internally.

It should be clear, also, to those skilled in the art that the setting dial **22** and **122**; **322**, **324**, all as shown in the drawings, may be eliminated completely and all of the settings may take place within the device, if desired.

It will further be clear that a simple knob as shown at **30** and **130**, attached to the actuating device for purposes of override may be in the form of a toggle switch or the like, which is well-known in the art. In this case, appropriate lovers and connections will be provided so that the manual actuation of the switch toggle is easily accomplished.

Throughout, no details of construction of timers and the like have been shown since these are well-known to those skilled in the art. Likewise, the mechanical con-

nections and the solenoid have been shown schematically for simplicity since mechanical details will be a matter of choice.

While the devices illustrated and described herein are fully capable of achieving the objects and advantages desired, it will be clear that many modifications may be made without departing from the inventive concepts disclosed. For example, the timing device itself may be actuated by a photo-electric cell or other light-sensitive device or even by proximity devices and the like.

The particular descriptions are for illustrative purposes only and not for purposes of limitation.

I claim:

1. An automatic electrical wall-mounted toggle switch actuating means comprising: a case having a front, top and bottom and two sides, with its back having an opening therein, suitable to receive a standard toggle switch handle; a bracket attached to said case and depending upwardly from the top thereof and having a U-shape at its upper extremity suitable to slip over the top of a standard switch wallplate, and having a hole therein to accommodate a screw at the location of the upper hole on a standard two-hole wall switch plate, whereby the upper screw in the switch faceplate may be removed, the U-shaped bracket hung over the top of the switchplate and the screw replaced through the hole in the bracket and the switchplate without removing the switchplate from the switch; a timing device located within said case having means to adjust the time cycle; said timing device so adapted as to impart power at a preset time to a device located within and connected to said case for actuating said toggle switch; and means operable from the exterior of said case to override said timing device actuated switch operating device.

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