Aug. 4, 1970 R. M. MURPHY 3,523,212

PLUG IN SCR LAMP DIMMER WITH WALL SWITCH AND SOCKET

Filed Feb. 15, 1968 2 Sheets-Sheet 1

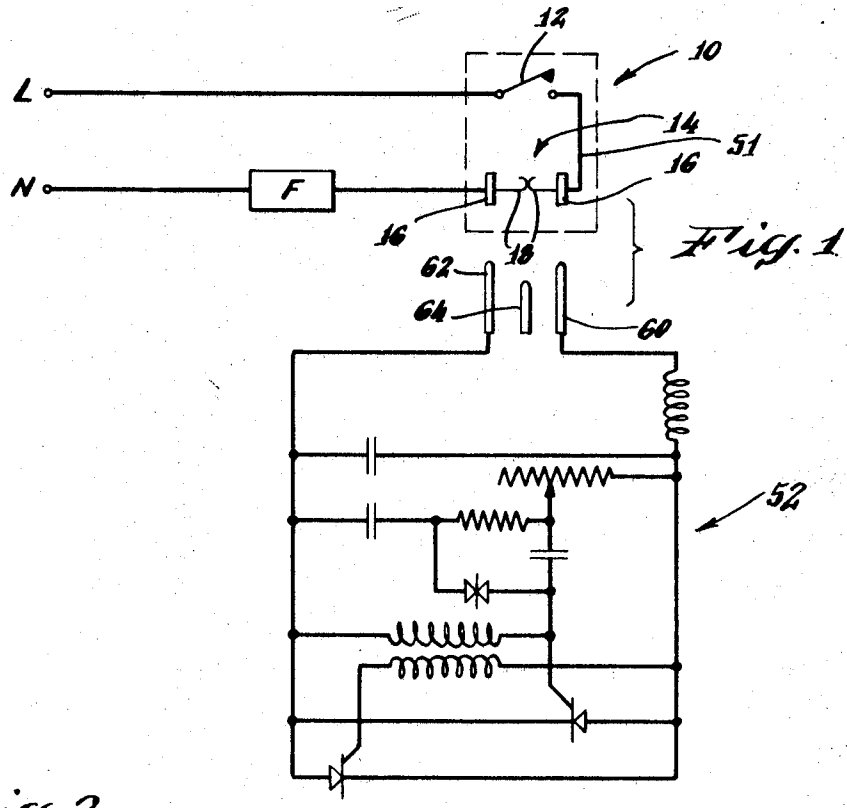


Fig. 1

Fig. 2.

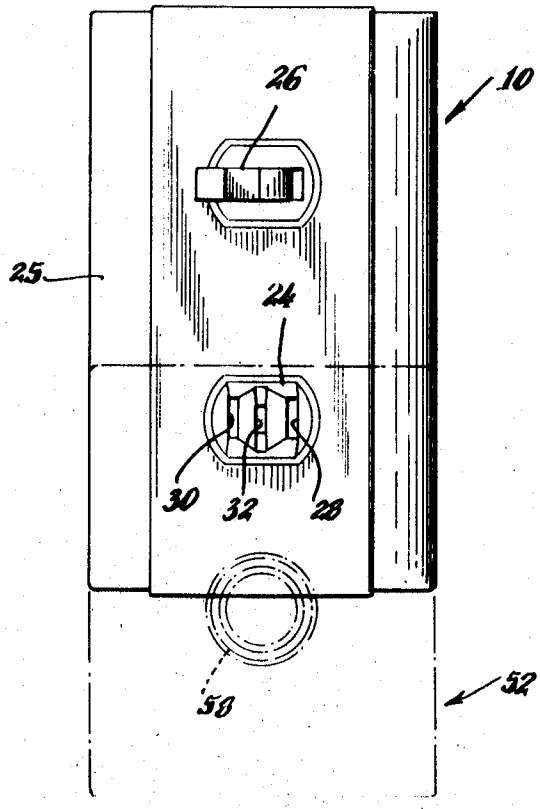
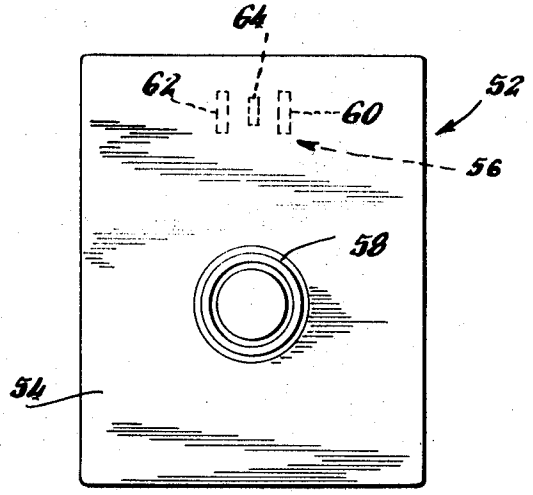


Fig. 3.



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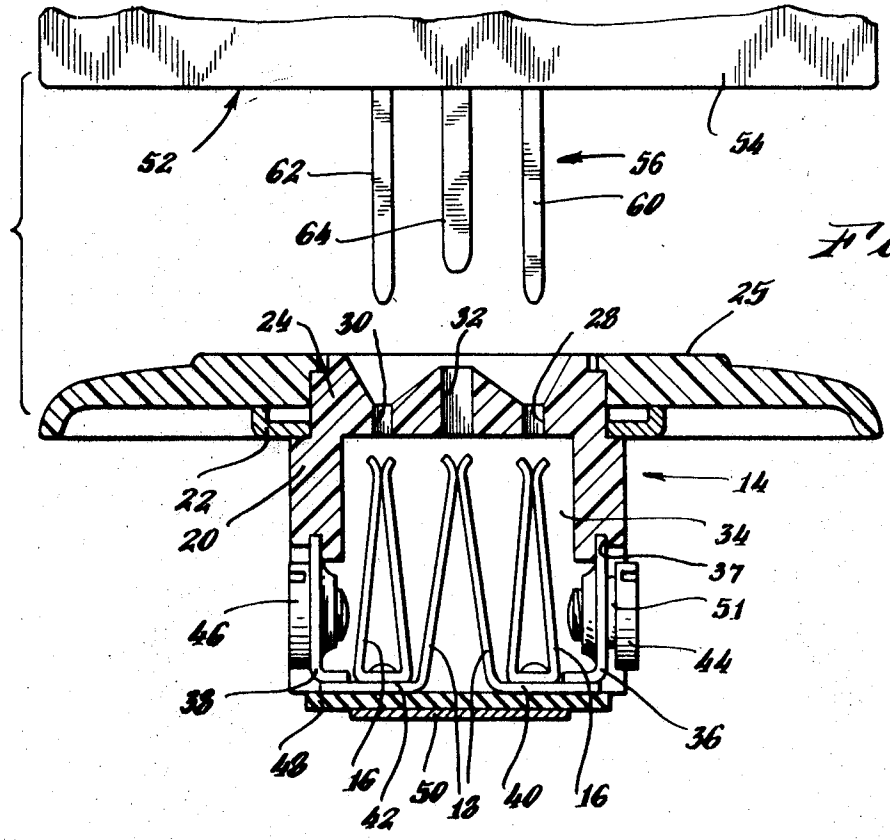
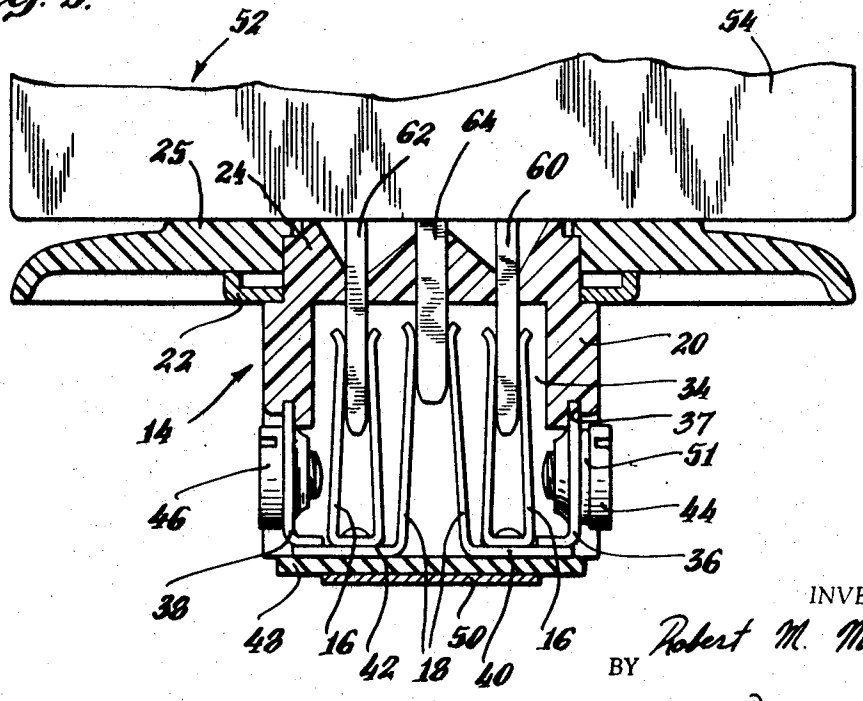


Fig. 4.

Fig. 5.



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PLUG-IN SCR LAMP DIMMER WITH WALL SWITCH AND SOCKET

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U.S. Cl. 315—291 9 Claims

ABSTRACT OF THE DISCLOSURE

A portable dimmer system having a wall mountable unit including a switch and special receptacle and a portable dimmer unit which may be selectively engaged with the special receptacle. The receptacle includes usual receptacle contacts which are shorted by means of selectively operable shorting contacts and the dimmer unit includes a housed dimmer circuit electrically connected to usual contact blades and a non-conductive operable blade insertable into the special receptacle to open the shorting contacts to allow current to flow through the dimmer circuit when the switch is closed.

BACKGROUND OF THE INVENTION

This invention relates to a light dimming system and more particularly to a portable device which may be utilized with special receptacles to selectively control the light intensity of several sets of fixtures.

In recent years it has become extremely popular in private homes to lower the ambient light level in various rooms of the house. Several types of dimmers are available for varying the intensity of incandescent lighting. One type includes a socket which itself receives an incandescent bulb and which may be mounted in a usual lamp socket. This unit houses suitable circuitry to enable the light intensity of the single bulb to be controlled. Also known is the permanently installed dimmer control unit which may be wall mounted in place of a usual wall mounted "ON-OFF" switch. This relatively expensive unit allows the homeowner to select either the maximum intensity "ON" position, the "OFF" position and a range of "DIM" positions. In a modern house, it would not be uncommon to find on the order of ten different lighting fixtures electrically connected so that they may be directly controlled by one or more switches. Therefore, it would run to considerable expense to provide each of these fixtures with a dimmer or to substitute a permanent dimmer wall unit for each of the switches. Where dimming is used fairly often as in a dining or living room it may be advisable to permanently install a dimming unit as described above. However, depending upon the location of the other fixtures the desirability and need to operate these with a dimming device would vary from very often to very rarely. For instance, in a child's bedroom it becomes desirable to utilize a dimmer to maintain a low ambient level of light present during periods of illness. This would normally be an extremely rare occurrence and would hardly justify permanent installation of a dimmer unit as the most convenient means of providing a reduced ambient light level.

SUMMARY OF THE INVENTION

Accordingly, it is the primary object of my invention to provide a dimming system including a single portable dimmer to be used together with one of several unique switch and receptacle units to selectively dim various fixtures as the need arises.

Another object is to provide an inexpensive, unique switch and receptacle device which would operate in the manner of a usual "ON-OFF" switch in the absence of the portable dimmer and in which the special receptacle will accept the portable dimmer to allow the dimmer circuitry to control the lighting fixture.

To accomplish these objects, in one form a portable dimmer system is provided which comprises: a wall mountable unit including light switch means and receptacle means electrically connected in series therewith, receptacle contact members, and means for short circuiting the receptacle contact members, positioned within the receptacle and selectively operable to open the short circuit; and a portable dimmer unit selectively engageable with the receptacle including a housing, dimming circuit means located within the housing, dimmer control means carried by the housing, contact means for insertion into the receptacle to engage the receptacle contact members and electrically connected to the dimming circuit means, and operator means for insertion into the receptacle to cooperate with the short circuiting means to open the short circuit.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects and further details of that which I believe to be novel and my invention will be clear from the following description and claims taken with the accompanying drawings wherein:

FIG. 1 is a schematic electrical wiring diagram showing the load circuit with the unique switch and receptacle located therein and the dimming circuit with its plug aligned with the special receptacle;

FIG. 2 is a front elevational view showing the face plate of the unique switch and receptacle unit with the portable dimmer shown connected thereto, being illustrated in dot-dash lines;

FIG. 3 is a front elevational view of the portable dimmer;

FIG. 4 is a transverse sectional view taken through the receptacle with the portable dimmer aligned to be connected thereto; and

FIG. 5 is a sectional view similar to that of FIG. 4 showing the portable dimmer connected with the special receptacle.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Turning now to the drawings, there is illustrated in FIG. 1 my unique switch and receptacle unit indicated generally by the numeral **10**. The unit **10** may be wall mounted in the manner of a usual ON-OFF switch and is wired in series with a lighting fixture F in the electric power supply line between terminals L and N. It includes a single-pole, single-throw AC switch **12** wired in series with a special receptacle **14** having two usual receptacle contacts **16** and central shorting contacts **18**.

The special receptacle **14**, clearly shown in detail in FIGS. 4 and 5 comprises a housing **20** made of a suitable electrical insulating material designed to be mounted upon a metal strap **22** so that its face **24** protrudes through an opening in the strap **22** and an aligned opening in a wall plate **25**. The switch **12** is mounted upon the metal strap **22** in a similar manner, with its toggle lever **26** also extending through another opening in the strap **22** and another aligned opening in the wall plate **25**. Three slots **28, 30** and **32** defined through the face **24** communicate the exterior of the receptacle housing with the interior chamber **34**. Disposed within the chamber are the two sets of usual receptacle contacts **16** and the central shorting contacts **18** which are aligned with the slots **28, 30** and **32**, respectively.

A terminal plate **36** positioned on the "hot" side of the line, is mounted in the slot **37** formed in one side wall of the housing. In a like manner, terminal plate **38** is secured in the housing on the "neutral" side of the line. The shorting contacts **18** comprise two generally L-shaped strips of a suitable spring metal each having one leg **40** and **42** secured to its respective terminal plate and each carrying one of the receptacle contacts **16**. Binding head screws **44** and **46** are threadedly engaged in the terminal plates **36** and **38** to secure current carrying wires to the special receptacle. A closure plate **48** located at the rear of the housing to maintain the contacts **16** and **18** in position in the chamber **34** and prevent entry of foreign objects is held in place by a suitable retaining strap **50**. A connecting wire **51** captured by the binding head screw **44** electrically connects the switch **12** to the special receptacle **14** as shown schematically in FIG. 1.

A portable dimmer unit **52** may be selectively used in conjunction with any one of the wall mounted unique switch and receptacle units **10** to control and intensity of any of the lighting fixtures F. The unit **52** includes a relatively small rectangular housing **54**, preferably made of a plastic material, having a special three bladed plug **56** extending from one face thereof and a rotatable wheel **58** extending outwardly from the opposite face thereof. The housing confines suitable dimmer circuitry such as that schematically represented in FIG. 1 which is more fully described in copending application of Misencik and Lee for patent for Phase Controlled Alternating Current Circuit, filed Aug. 8, 1966, Ser No. 570,798, assigned to the assignee of the instant application.

The plug **56** includes the usual metal power blades **60** and **62** and a shorter, central operator blade **64** which is made of a non-conductive plastic material. With reference to FIGS. 1, 4 and 5 it should be understood that as the power blades **60** and **62** are passed through the slots **28** and **30** into the receptacle contacts **16** they initially connect the dimmer circuitry across the supply line in parallel with the shunt formed by the shorting contacts **18**. As the plug **56** is further inserted, the operator blade **64** will urge the shorting contacts apart, to allow the dimmer circuitry to control the lighting fixture F. On removal of the portable dimmer unit **52** from the special receptacle **14** the sequence would be in reverse to allow the shorting contacts to close prior to the loss of electrical contact of the power blades **60** and **62** with the receptacle contacts **16** (note FIG. 5). This sequential control of the shorting contacts **18** relative to the receptacle contacts **16** serves a two-fold function. It provides protection from full power surges to the dimmer circuitry should the portable dimmer unit be inserted in or withdrawn from the special receptacle while the series connected switch **12** is in a closed position. This sequence also provides protection to the receptacle contacts **16** from arcing.

The unique switch and receptacle unit **10** is relatively inexpensive, approaching the cost of a single ON-OFF switch which it would replace. As shown in FIG. 2 the wall plate **25** exposes the switch toggle lever **26** and the special receptacle face **24** which receives the portable dimmer unit **52** (note dot-dash lines). Once unit **52** is mounted in place, the dimmer wheel **58** may be selectively rotated in either a clockwise on counter-clockwise direction to vary the light intensity of the lighting fixture F and the switch **12** may still be used to provide a positive turnoff. In the absence of the portable dimmer unit, the shorting contacts **18** allow the unique switch and receptacle unit **10** to operate in the manner of a usual ON-OFF switch. It should be apparent to those skilled in this art that the shorting contacts housed in the special receptacle operate as a mechanical switch and may take other forms. and may be controlled by any of various types of mechanical operators carried by the portable dimmer unit.

It is believed that the many advantages of this invention may now be apparent to those skilled in the art. As set forth in the objects above I have provided a low cost portable dimmer unit which may be used in conjunction with any one of a number of unique switch and receptacle units which would replace the usual wall mounted switches so that the user may have complete flexibility of choice as to which lighting fixtures would be dimmed.

It should be understood that the present disclosure has been made only by way of example and that numerous changes in details of construction and the combination and arrangement of parts may be resorted to without departing from the true spirit and the scope of the invention as hereinafter claimed.

What is claimed is:

1. A wall mountable unit comprising: a wall plate; a light switch carried by said wall plate and having first and second electrical terminals for receiving electrical current carrying wires; a receptacle carried by said wall plate and having first and second electrical terminals, a first receptacle contact member electrically connected to said first terminal, a second receptacle contact member electrically connected to said second terminal, means for normally electrically short circuiting said first and second terminals being selectively operable to open the short circuit; and electrical conductor means connecting said second switch terminal with said first receptacle terminal to place said switch in series with said receptacle.

2. The wall mountable unit defined in claim **1** wherein: said receptacle comprises a housing; said short circuiting means includes a pair of spring metal contacts each having one end normally biased against said other contact, the other ends of said spring metal contacts being secured to said receptacle terminals.

3. The wall mountable unit defined in claim **2** wherein said housing includes a plurality of slots formed in one face thereof, said slots being aligned with said receptacle contacts and said short circuiting means.

4. A portable dimmer unit selectively engageable with a wall mounted receptacle, comprising: a housing; dimming circuit means positioned within said housing; selectively operable dimmer control means mounted on said housing; contact means for insertion into the receptable extending outwardly from said housing and being electrically connected to said dimming circuit means; and operator means for actuating a switch when said portable dimmer unit is engaged with the receptacle.

5. The portable dimmer unit defined in claim **4** wherein: said dimmer control means comprises a rotatable dimmer wheel positioned upon one face of said housing; and said contact means includes a plug having blades positioned upon another face of said housing for insertion into the receptacle contacts of the receptacle.

6. The portable dimmer unit defined in claim **4** wherein said operator means extends outwardly from said housing and comprises a blade formed on a non-metallic, insulating material.

7. The portable dimmer unit defined in claim **6** wherein: said contact means includes a plug having blades positioned upon another face of said housing for insertion into the receptacle contacts of the receptacle; and said operator blade is shorter than said contact blades.

8. A portable dimmer system comprising: a wall mountable unit including light switch means and receptacle means electrically connected in series therewith, said receptacle means housing receptacle contact members and means for electrically short circuiting said receptable contact members being selectively operable to open the short circuit; and a portable dimmer unit selectively engageable with said receptacle including a housing, dimming circuit means located within said housing, dimmer control meant carried by said housing, contact means for insertion into said receptacle to engage said receptacle contact members and being electrically connected to said dimming circuit means, and operator means for insertion into said receptacle to cooperate with said

short circuiting means to open the short circuit, whereby, when said portable dimming unit is engaged with said receptacle, electrical current must pass from said switch through said dimming circuit means to control an electrically connected lighting fixture.

9. The portable dimmer system defined in claim 8 wherein: said receptacle includes a housing having a plurality of slots formed therein; said receptacle contacts and said short circuiting means being aligned with said slots; said dimmer unit contact means includes a plug having blades extending outwardly from one face of said dimmer unit for insertion through said slots to engage said receptacle contacts; and said operator means includes a plastic blade extending outwardly from said one face of said dimmer unit for insertion through one of said slots.

References Cited

UNITED STATES PATENTS

Re. 26,119	12/1966	Slater	323—22
2,433,080	12/1947	Willett	200—51.1 X
2,742,593	4/1956	Voss	315—320 X
2,840,765	6/1958	Carpenter	315—291 X
3,047,773	7/1962	Morton	315—205
3,243,773	3/1966	Leichenring	200—51.1 X
3,331,013	7/1967	Cunningham	323—22

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200—51.1; 307—305; 315—205; 323—24