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LIGHTING FIXTURE WITH DOOR OPERATED LIGHT SWITCH

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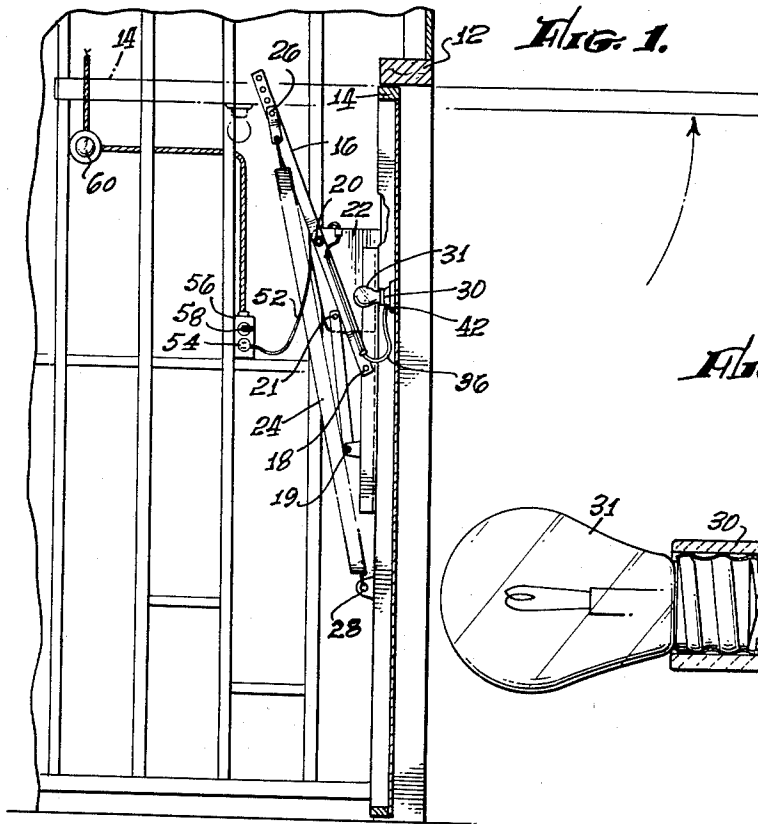


Fig. 1.

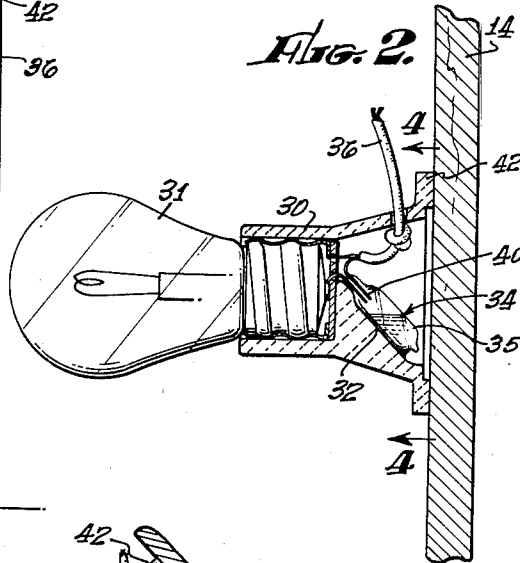


Fig. 2.

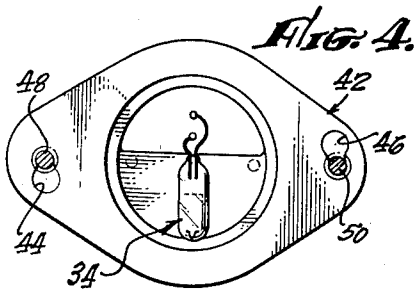


Fig. 4.

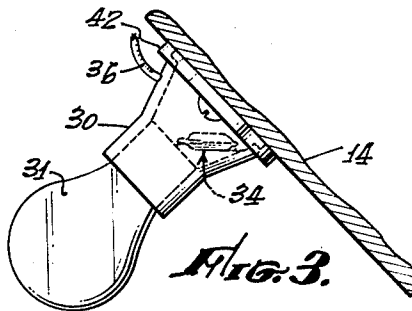


Fig. 3.

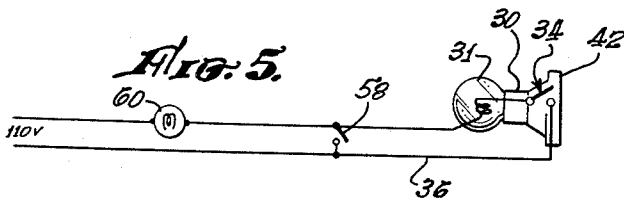


Fig. 5.

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1

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LIGHTING FIXTURE WITH DOOR OPERATED LIGHT SWITCH

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2 Claims. (Cl. 240-2)

This invention relates generally to an improved automatic lighting apparatus; more particularly, it relates to a light device which is operated automatically by tilting a door.

The device or apparatus of the present invention comprises a lamp fixture which is adapted to be mounted on a tiltable door, such as a conventional garage door, and which contains a mercury switch mounted at an angle relative to the door and operable by the tilting of the door in opening or closing. A preferred form of the invention further includes an extension cord and an electrical receptacle or outlet having a switch for controlling a separate conventional electric lamp, the arrangement being such that the mercury switch is rendered inoperative when this switch is used to energize the conventional lamp.

The device of this invention is particularly adapted for use with the conventional tilting doors of household garages. In such use, it automatically lights a garage and its environs upon the opening movement of the tilting door, and extinguishes the light upon the closing movement of the door.

It is therefore an object of the present invention to provide a lighting device for automatically providing light upon the movement of a tiltable door and for automatically extinguishing the light upon reverse movement of the door.

An object of this invention is the provision of a novel lighting fixture adapted for extreme ease of installation on a tiltable door and for ease of connection into an electrical system.

It is an object of this invention to provide an automatic lighting fixture having a lamp socket and having a mercury switch, together with means for convenient attachment to a tiltable door, whereby the mercury switch activates and inactivates a lamp in accordance with door movements.

An object of the present invention is the provision of a lighting fixture as aforesaid, wherein the fixture itself includes a lamp bulb and a mercury switch.

It is another object of this invention to provide a door lighting fixture adapted to be plugged into an electrical outlet receptacle having a switch for controlling a conventional lamp, the circuit being such that the door lighting fixture is rendered inoperative while the conventional lamp is energized and that the conventional lamp is inoperative while the door lighting fixture is energized.

Other objects and features of the present invention, as well as many advantages thereof, will become apparent to those skilled in the art from a consideration of the following description, the appended claims, and the accompanying drawings in which:

Figure 1 is an elevational view showing a preferred form of the present invention in operative association with a conventional garage door and an electrical outlet;

Figure 2 is a sectional view showing details of a base or fixture according to the present invention;

2

Figure 3 is an elevational view showing the fixture of Figure 2 in a tilted position;

Figure 4 is a sectional view taken at line 4-4 of Figure 2;

Figure 5 is a schematic diagram of the electrical circuitry utilized with the present invention.

Referring to the drawings, and particularly to Figure 1, a preferred embodiment of the lighting device of the present invention is shown in operative association with a garage door. A door frame 12 accommodates a garage door 14. The door is of a conventional type which is tiltable, as indicated by the arrow, from the vertical position shown to the horizontal position indicated in phantom outline.

The device of this invention may be utilized with doors of various types which are tiltable in operation. The mechanism herein shown and described for facilitating the opening and closing of a tiltable door does not constitute a part of the present invention. Figure 1 illustrates a conventional mechanism associated with a tiltable garage door. A link 16 is pivoted at 18 to a member affixed to an intermediate part of door 14. Link 16 is also pivotally connected at 20 to a bracket 22 which is rigidly secured to the door. When pulled outwardly at its bottom, the door rotates about pivot points 18 and 20 in swinging upward to the horizontal position shown in phantom outline. A helical spring 24 has its upper end attached at 26 to link 16, as shown, and is secured at its lower end to an appropriate fitting 28 mounted on door frame 12. Spring 24 counterbalances the door during opening and closing by exerting a balancing force at 26 on link 16, the balancing force varying in accordance with the force exerted by the door on member 16 at point 18 in a manner well known in the art.

The device of this invention comprises a phenolic or plastic base or fixture 30, as shown in Figure 2. The base has a socket portion for receiving a conventional electric lamp bulb 31, and has an inclined surface 32 within a hollow portion thereof. Mounted on this surface as by cementing is a mercury switch 34. Electrical leads 36 extend through an opening in the base and interconnect bulb 31 in series with the mercury switch 34. Mercury switch 34 comprises a closed tube 35 partially filled with mercury. Conductors 40 extend into the upper end of the inclined tube 35, one of the conductors being an end portion of one of the leads 36. With the garage door closed as shown in Figure 1, the mercury in switch 34 is disposed as shown in Figure 2 so that conductors 40 are not bridged by the mercury. Figure 3 shows fixture 30 in tilted position, with the mercury in switch 34 bridging contacts 40.

The base 30 has a flange portion 42 which has the configuration shown in Figure 4. Flange portion 42 has diametrically disposed openings 44 and 46, each of which includes an enlarged circular portion communicating with a smaller circular portion as shown. Openings 44 and 46 are adapted to have these larger portions positioned about screws 48 and 50 on door 14, and are adapted to secure base 30 by engagement (upon slight rotational movement of the fixture) of the peripheries of the smaller portions of the openings with the screws or studs 48 and 50. Thus, the base is secured to the door in a manner which greatly facilitates its removal.

Leads 36 to bulb 31 and switch 34 form part of an extension cord 52 which has an electrical plug 54 for engagement with an electrical receptacle or box 56 mounted on the garage wall, as shown. The receptacle has a switch 58 for controlling the conventional light 60 mounted in the garage.

The electric circuitry is shown schematically in Fig-

ure 5. Lamps or bulbs 31 and 60 are preferably conventional 110 volt lamps. Lamp 31 preferably has a wattage rating approximately one fourth that of lamp 60. For example, lamp 31 might be a 25 watt bulb and lamp 60 might be a 100 watt bulb. As shown, lamp 60 is serially interconnected with lamp 31 and mercury switch 34. Switch 58 is in series with lamp 60 and is in shunt relationship with lamp 31 and mercury switch 34. It will therefore be understood that the mercury switch and lamp 31 are rendered inoperative by the closing of switch 58 to energize lamp 60.

In the operation of the device of the present invention, switch 58 is left open so that the automatic lighting device is operative. When the garage door is tilted as shown in Figure 3, the mercury in switch 34 bridges contacts 40 and lamp 31 is energized to furnish light. Assuming that the wattage ratio between lamps 60 and 31 is properly selected, for example a ratio of 4 to 1 or greater, lamp 60 does not glow. Lamp 31 furnishes light during the remaining movement of the door to the horizontal position indicated in phantom outline in Figure 1 and remains lighted while the door is in this position. On closing the door, mercury switch 34 is opened by the withdrawal of the mercury from contacts 40 and lamp 31 is extinguished.

The conventional garage light 60 is operated by switch 58. When the switch is closed, lamp 60 is energized and the automatic lighting device is inoperative, as hereinbefore mentioned. With switch 58 open, the automatic lighting device is operative upon tilting the door, and lamp 60 does not light if the wattage ratio of lamps 60 and 31 is appropriate.

From the foregoing, it will be understood that the automatic lighting device of this invention may be installed in a garage merely by mounting the fixture on the door in the convenient manner hereinbefore described and by installing the switch receptacle in the garage. The apparatus of this invention is particularly useful with garage doors, and provides light for the garage and its environs immediately upon the opening or tilting of the garage door. Light is provided until the door is partially closed, whereupon the light is automatically extinguished. It will be understood that the automatic lighting device of this invention may be manufactured and sold as a self-contained unit consisting of the base fixture and its extension cord. It may also be manufactured and sold with an appropriate receptacle or outlet having a switch for selectively turning on an existing conventional garage light or rendering the automatic lighting device operative upon tilting of the door.

Although a specific embodiment of the present invention has been described and illustrated in detail, it is to be clearly understood that the same is by way of illustration and example only; it is to be understood that the

invention is not to be limited thereto, as many variations will be readily apparent to those versed in the art and the invention is to be given its broadest possible interpretation within the scope of the appended claims.

The inventor claims:

1. In combination with a garage door adapted for tilting in moving between open and closed positions, a lighting device comprising a lamp fixture detachably mounted on the door, a mercury switch mounted in the fixture and serially connected with a lamp mounted in said fixture, said mercury switch being positioned to be open when the door is in closed position, an extension cord connected with the mercury switch and adapted for connection with an existing electrical outlet receptacle mounted in the garage and adapted to receive the extension cord, and a single pole single-throw switch on said receptacle and in shunt relationship with said mercury switch, said single-throw switch controlling an existing conventional garage lamp, the wattages of said lamps being in such ratio that only said fixture lamp produces light when energized in series with said conventional lamp, whereby with said single-throw switch in a first position said conventional lamp is operative, and with said single-pole switch in a second position said mercury switch is operative to energize said fixture lamp upon said tilting of said door.

2. In combination with a door adapted to tilt in moving between open and closed positions, a lamp fixture detachably mounted on the door, means defining at least one opening in said fixture for engaging supporting means on said door, said fixture having a cavity defined therein, a mercury switch positioned in said cavity to be normally open, said mercury switch being serially connected with a lamp bulb mounted in said fixture, circuit means interconnecting the switch with said lamp bulb, an extension cord connected with the mercury switch and adapted for connection with an electrical outlet receptacle adapted to receive the extension cord, and a single pole single-throw switch on said receptacle and in shunt relationship with said mercury switch, said single-throw switch controlling an existing conventional lamp, the wattages of said lamps being in such ratio that only said fixture lamp produces light when energized in series with said conventional lamp, whereby with said single-throw switch in a first position said conventional lamp is operative, and with said single-pole switch in a second position said mercury switch is operative to energize said fixture lamp upon said tilting of said door.

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