Oct. 16, 1962 P. H. SHERRON 3,059,102

ILLUMINATED TELEPHONE BOOTH

Filed April 18, 1960 3 Sheets-Sheet 1

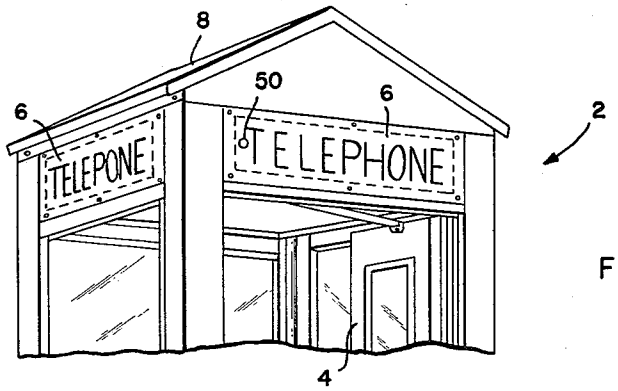


FIG. 1.

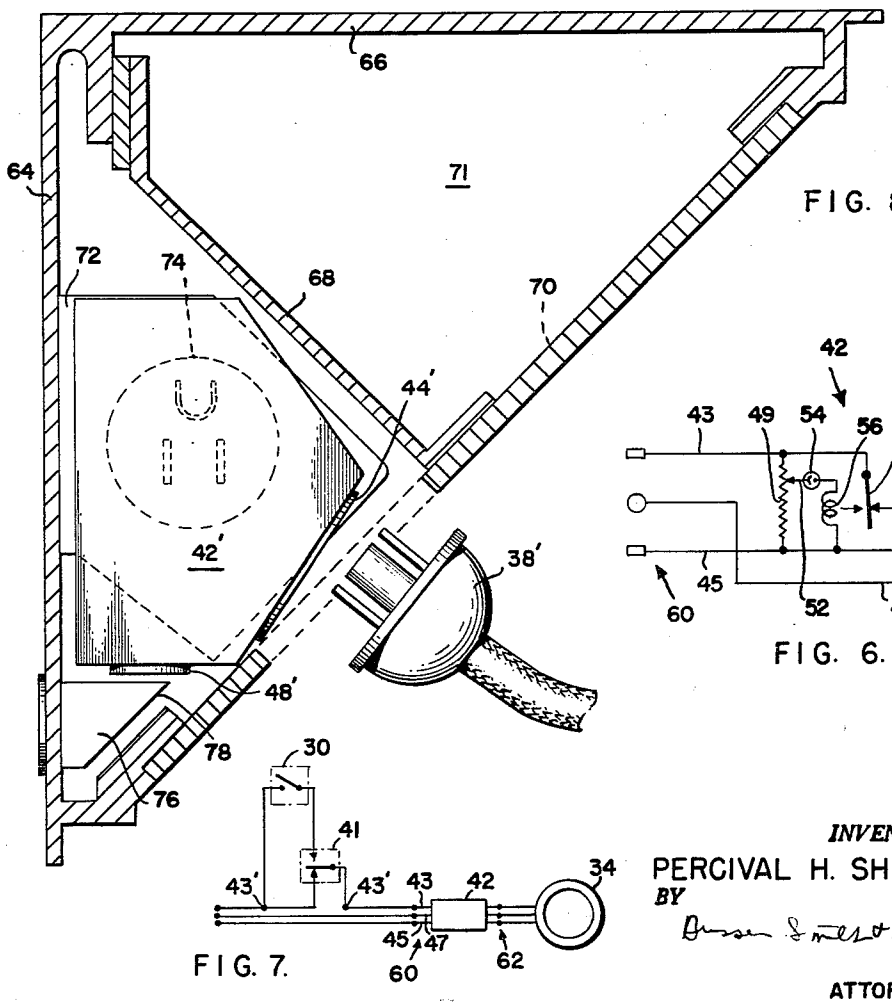


FIG. 8.

FIG. 7.

FIG. 6.

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ILLUMINATED TELEPHONE BOOTH

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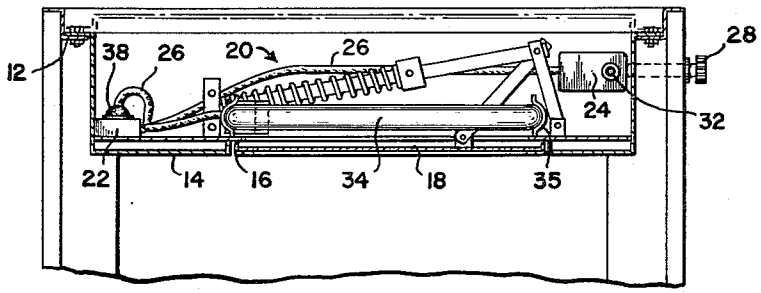


FIG. 2.

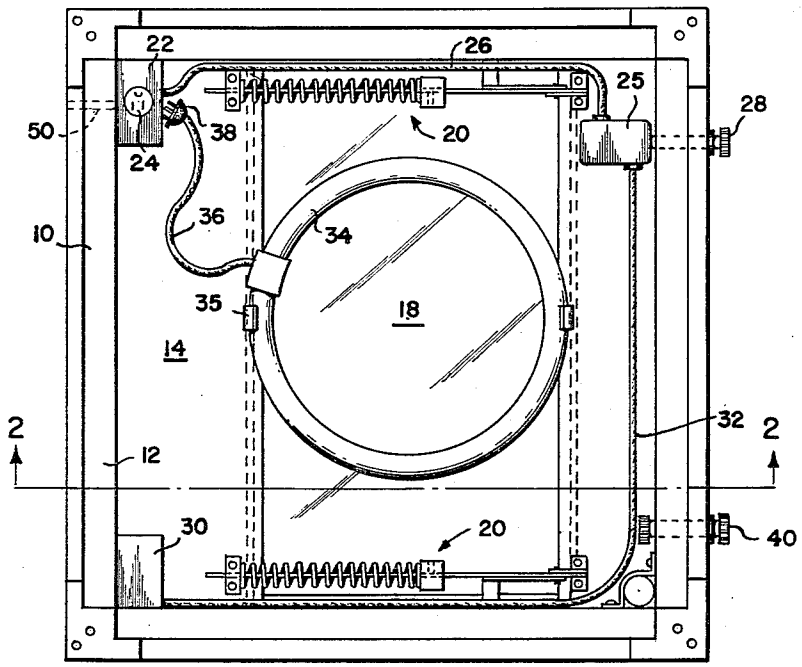


FIG. 3.

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ILLUMINATED TELEPHONE BOOTH

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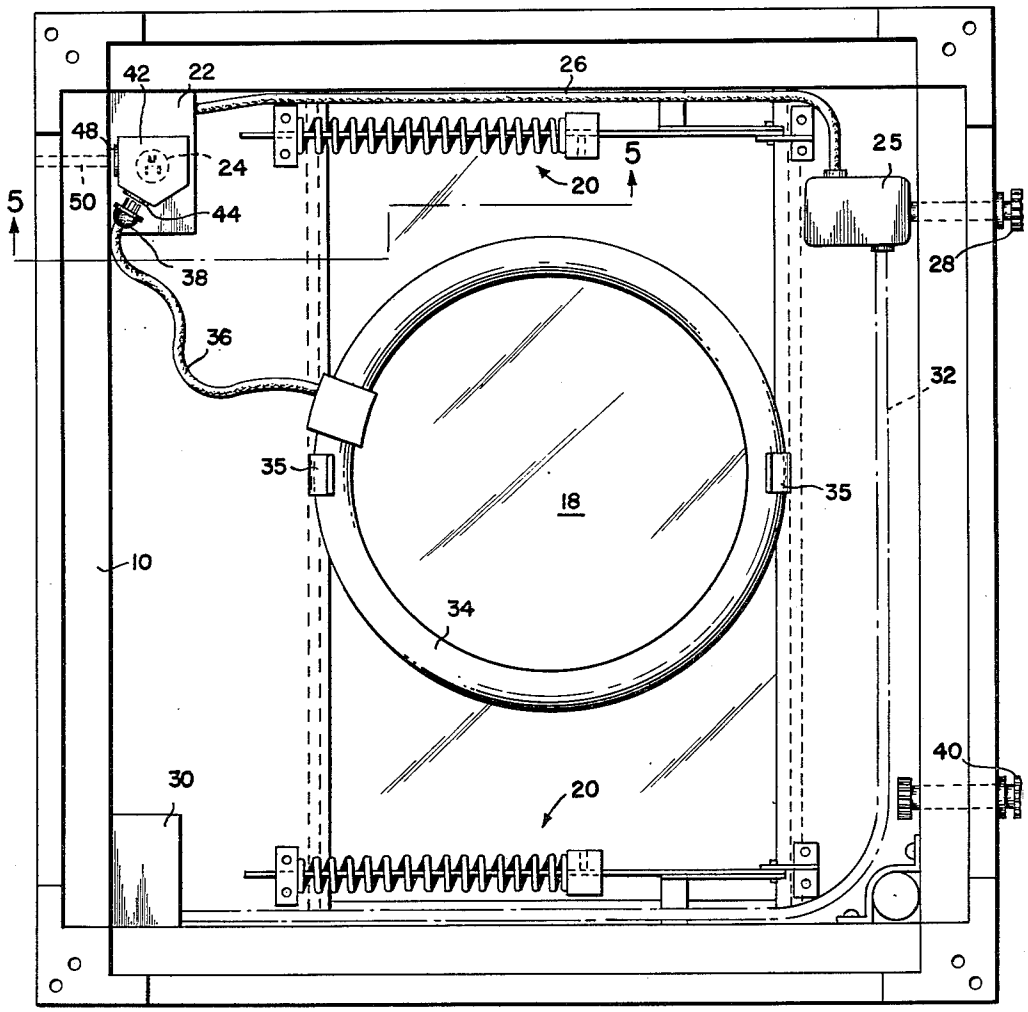


FIG. 4.

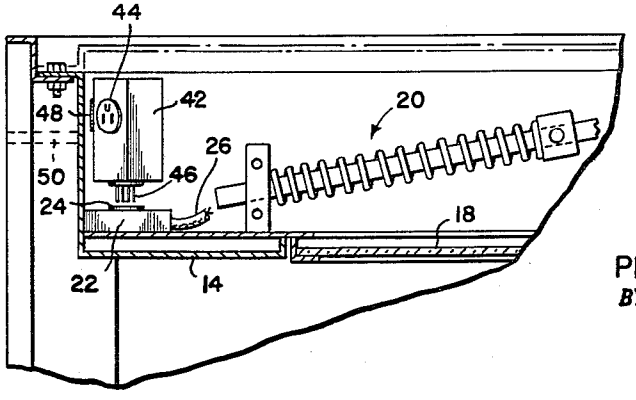


FIG. 5.

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3,059,102
Patented Oct. 16, 1962

3,059,102

ILLUMINATED TELEPHONE BOOTH

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Filed Apr. 18, 1960, Ser. No. 23,031
1 Claim. (Cl. 240—2)

The invention relates to the lighting of telephone booths, and more particularly to a novel arrangement whereby the operation of the lighting can be conveniently converted between control by a door switch and control by the outdoor light intensity.

In recent years the installation of telephone booths, both indoors and outdoors, has become more widespread, and frequently such booths are placed at remote outdoor areas such as roadsides, parks and beaches. Due to such remoteness the booth lighting generally is controlled automatically, either by opening and closing of the door or by daylight intensity. Where the area surrounding a booth is at night unlighted and dark, it is desirable to light up the booth and a sign, for example "Telephone," so as to indicate its location and act as a guide. On the other hand, where the booth is visible due to surrounding lights, control of the lighting by a door switch may be satisfactory. However, whichever the case, the booth is normally constructed, wired and provided with means for controlling the lighting in one manner only. If the booth is to be converted from door switch to light responsive operation, for example, a photorelay must be installed and the door switch removed or disconnected. Due to a change in the surrounding area, relocation of the booth, seasonal changes or the like, such a conversion may be desired.

Accordingly, it is the main object of the invention to provide an arrangement whereby a telephone booth is easily convertible as to control of its lighting by either a door switch or light sensitive means.

According to the specific embodiments of the invention disclosed hereafter, there is provided an ordinary receptacle into which is merely plugged the light fixture when it is to be controlled by a door switch. When conversion to light responsive operation is desired, the fixture is merely unplugged from the receptacle and a photorelay is plugged into the receptacle. Then the fixture is plugged into a receptacle in the photorelay unit and the door switch wires disconnected at the terminal box. A light conducting rod, of translucent plastic, for example, provided in the booth wall conducts light to the photorelay and, depending on its sensitivity adjustment, as the daylight wanes and evening approaches the relay responds by completing an electric circuit to the lighting fixture to illuminate the same. A re-conversion to door switch operation is possible merely by unplugging and removing the photorelay.

Further objects and advantages will become apparent from the following description read in conjunction with the accompanying drawings, in which:

FIGURE 1 is a perspective view of the upper portion of a telephone booth representative of the type to which the invention is to be applied;

FIGURE 2 is a vertical cross-section of the booth, with its roof removed, when the lighting is controlled by the door switch;

FIGURE 3 is a plan view of the booth, with its roof removed, when the lighting is controlled by the door switch;

FIGURE 4 is a plan view of the booth, with its roof removed, when converted to operate in response to the outdoor light intensity;

FIGURE 5 is a partial vertical cross-section of the structure shown in FIGURE 4;

FIGURE 6 is a wiring diagram of a typical photorelay unit which may be used in accordance with the invention;

FIGURE 7 is a diagram illustrating the wiring of the booth to include a switch for selection between lighting control by a door switch and by a photorelay; and

FIGURE 8 is a partial plan view of the corner of a different type of booth wherein the invention has been applied with slight modification.

The telephone booth 2 illustrated in FIGURE 1 is of the fairly conventional type having a door 4 and translucent sign panels 6 adapted to be illuminated from behind. Referring to FIGURES 2 and 3, which show a booth which has had its roof 8 removed, the slides 10 have flanges 12 from which a false ceiling 14 is supported. An access door 16 having a translucent glass or plastic panel 18 is hinged in the ceiling 14 and is associated with positioning linkage generally indicated at 20 and which forms no part of the present invention.

A box 2 houses a conventional three-pole female receptacle 24 which is connected to a terminal box 25 by electric conduit 26. A fitting 28 is provided for lead in of electric power lines to the terminal box 25. In the upper right-hand corner of the booth (the front of the booth being at the left in FIGURES 2 and 3) there is provided a door switch 30 which is electrically connected to the terminal box 25 by electric conduit 32. Mounted above panel 18 by clips 35 is a fluorescent light 34 of the circular type. The light 34 is energized through an electric conduit 36 having a strictly conventional three-pole male plug 38 adapted to fit receptacle 24. The light 34 is plugged into receptacle 24 and the circuit arrangement is obviously simple, the light 34 and switch 30 being connected in series, whereby opening and closing of the door turns the light off and on, respectively. The fitting 40 is provided as a lead-in for the telephone wires.

Referring to FIGURES 4 and 5, the basic structure is unchanged except that a plug 38 has been disconnected from receptacle 24 and a photorelay unit 42 has been interposed therebetween. The photorelay 42 has electric output and input terminals comprising, respectively, a three-pole female receptacle 44 and a three-pole male plug 46, the former being adapted to receive light fixture plug 38 and the latter being adapted to fit receptacle 24. The photorelay 42 also has a window-like opening 48 which, when the unit is plugged into receptacle 24, is opposite a light conducting glass or plastic rod 50 inserted through the front side of the booth (FIGURE 1). The provision of a light conducting such as 50 is not necessary, but is desirable in that greater sensitivity of a photo relay to outside light conditions is afforded.

It will be noted that in FIGURE 4 the conduit 32 leading to switch 30 is shown in broken lines to indicate that when photorelay 42 is interposed between plug 38 and receptacle 24 the lines of conduit 32 at the terminal box 24 are disconnected or completely removed, thus removing switch 30 from operation. In cases where it is expected that numerous conversions and reconversions of the booth lighting system will be made for operation in response either to daylight or door switch operation, a switch may be merely provided at terminal box 24 to bypass electric conduit 32. The latter arrangement is illustrated in FIGURE 7, wherein a manually operated two-way switch is indicated at 41. Thus by the manual operation of switch 41 door switch 30 may be disconnected from series relationship with light 34. When photorelay 42 is disconnected switch 41 may be operated to re-connect door switch 30 to light 34. It will be noted that if door switch 30 is connected in the circuit of light 34 when photorelay 42 is installed, the light will be turned on during dark hours only when the door is closed, which

may be a desirable third mode of operation under certain conditions. As previously indicated the provision of switch **41** is merely optional; when switch **41** is not provided door switch **30** is merely connected (by conduit **32**) across terminals **43'**. When photorelay **42** is to be plugged in the door switch is disconnected from terminals **43'**, which are then directly joined at the terminal box.

The photorelay **42**, which may be a conventional cadmium-sulfide cell, is sensitive to light intensity, and is conducting during the daylight hours. Referring to FIGURE 6, there is shown a typical internal circuit arrangement of a photorelay **42**. The lines **43** and **45** are adapted to be connected to two main 110 volt power lines. The middle wire **47** of the three-pole arrangement is merely the usual additional safety ground wire. A potentiometer coil **49** is shunted across lines **43** and **45** and has a sliding contact **52** for adjustment of sensitivity. The actual light sensitive photoelectric tube is indicated at **54** and, when conducting, energizes a relay coil **56** to open a normally closed switch **58** in line **43**. The bias voltage of tube **54**, determining the tube's sensitivity, may be preset at the factory or in the field by adjustment of sliding contact **52**. The three-pole terminals of photorelay **42** corresponding to receptacle **44** and plug **46** (FIGURE 5) are schematically represented in FIGURES 6 and 7 at **60** and **62**. From the above description of photorelay **42** it will be evident that during daylight hours relay coil **56** will be energized to open switch **58**, thereby disconnecting the circular fluorescent light **34** from its source of power. It will be illuminated, however, upon the closing of switch **58** when tube **54** become non-conducting with diminishing daylight.

Summing up the operation of FIGURES 1 to 7, therefore, the invention provides a convenient manner of selecting between control of the lighting by a door switch or by light intensity. When it is desired to turn the lights on and off by operation of the door switch the photorelay **42** is not provided, the plug **38** merely being inserted in receptacle **24** and the door switch **30** remaining in series connection with light **34**. When it is desired to make the turning on and off of the lighting responsive to outside light intensity the photorelay **42** is merely interposed between plug **38** and receptacle **24** and the wires of conduit **32** are disconnected or removed at the terminal box **24**. Alternatively, a previously installed switch such as the switch **41** shown in FIGURE 7 may be operated to disconnect the door switch. An even further possible method of disconnecting the door switch is to permanently or semi-permanently close the switch **30** so that it will not open upon opening of the door, or rather will remain closed irrespective of door operation.

Referring to FIGURE 8, the invention is there shown as applied to a telephone booth having a more confined corner space. A booth having such a corner structure is also being used to a considerable extent and there arises the problem of fitting the photorelay into the available space. FIGURE 8 is a plan view of the upper rear right-hand corner, which comprises a pair of side panels **64** and **66** with a bracket **68** for reinforcing a panel **70**. The panel **70** spans the corner and is provided for mounting of the telephone, the space **71** therebehind being used for the lead-in wires. A supporting shelf or bracket **72** is provided for mounting a receptacle **74** corresponding to the receptacle **24** previously described. In this receptacle **74** may be plugged a photorelay **42'** having a female receptacle **44'** adapted to receive a male plug **38'**, and a window-like opening **48'**. The aforementioned numbers bearing a prime ('), it will be noted, correspond to elements of the photorelay bearing corresponding reference numerals in FIGURES 4 and 5. In other words, a photorelay used in accordance with FIGURE 8 is the same as that used in a telephone booth structure according to FIGURES 3 to 7. It will be noted also that in the corner structure of FIGURE 8 the space in which photorelay **42'** may be placed is not large. Accordingly, there is provided a light conducting rod **76** which is shaped rather differently from the rod **50**. This light conducting rod, which is of translucent glass or plastic, has been shaped to accommodate the positioning of photorelay **42'** in that the end **78'** has been cut at a 45° angle and preferably is provided with a reflecting material at **78**, whereby light will be conducted and reflected directly through opening **48'** to operate the photorelay **42'**. Light conducting means may be cut and formed in various configurations to conduct light to a photorelay in practically any space and position in which it must be mounted. Regarding further the light conducting rod **76** (and **50**) the acrylic resins are highly satisfactory light conducting materials, "Lucite" being a specific example in this group.

It will be understood that various departures from the particularly disclosed embodiments of the invention may be made without departing from the scope of the invention as defined by the following claim.

What is claimed is:

In a telephone booth having a door, an electric supply outlet, a door switch, a photorelay, a light fixture, said outlet, photorelay and fixture being connected in a series circuit, means operable to connect said door switch in series with said fixture and outlet for controlling energization of said fixture, means facilitating insertion and removal of said photorelay from said circuit comprising a male and female plug connection at the fixture side of the photorelay and a second similar male and female plug connection at the outlet side of the photorelay, said plug connections being connected in series with said photorelay, and said first-mentioned means also being operable to disconnect said door switch from said circuit while said photorelay is connected therein, the photorelay having a switch in said circuit which is closed upon decrease of light intensity to a predetermined minimum, and a light conducting element in an opening in a wall of the booth, said photorelay being mounted within the booth in a position to receive light conducted by said element when said photorelay is connected in said series circuit, said outlet being arranged to be connected directly to said fixture when said photorelay is not connected in series with said outlet and said fixture.

References Cited in the file of this patent

UNITED STATES PATENTS

2,256,595	Metcalf	Sept. 23, 1941
2,625,300	Saxe	Jan. 13, 1953
2,749,429	Wavell	June 5, 1956
2,776,364	Daniels	Jan. 1, 1957
2,821,038	Gee	Jan. 28, 1958
2,881,306	Sherron	Apr. 7, 1959
2,883,796	Reveka	Apr. 28, 1959
2,901,593	McNally	Aug. 25, 1959
2,967,981	Wise	Jan. 10, 1961