

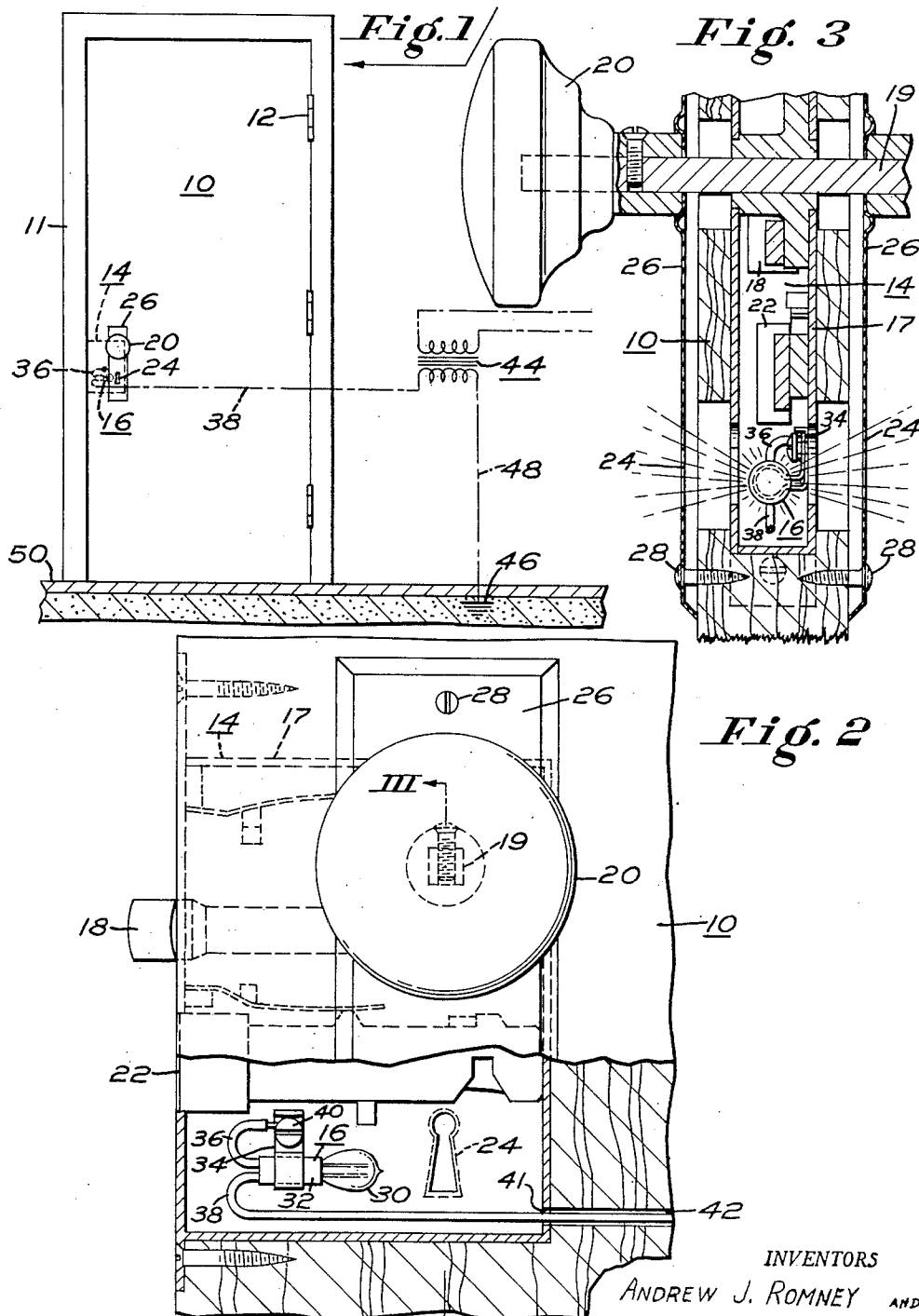
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A. J. ROMNEY ET AL

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KEYHOLE ILLUMINATOR

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III BY

Beau, Brooks, Buckley & Beau.
ATTORNEYS.

INVENTORS

ANDREW J. ROMNEY AND

CHARLES E. MONIN

1

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KEYHOLE ILLUMINATOR

Andrew J. Romney and Charles E. Monin,
Niagara Falls, N. Y.

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4 Claims. (Cl. 240—2.13)

This invention relates to a lighted door lock or similar utility, and more particularly to an automatically operated illuminator for keyholes or the like.

Lights for illuminating keyholes and similar apertures have been provided heretofore by means of incandescent bulbs having manually operated switch mechanisms which when actuated would close the circuit of the bulb to provide light for insertion of a key or the like. These prior art devices have had the disadvantage of the necessity for bulky switch mechanisms in a confined space and have required maintenance in the renewal of the bulb and the replacement of worn switch parts. Also such prior art devices require a specific manipulation on the part of the operator for operation of the switch, such as is difficult in the dark and largely defeats the purpose of such an illuminator.

The present invention provides a light for keyholes or the like wherein operation of the device will occur upon touching of any part of the face portion of the door latch or other similar utility, and the illumination will continue so long as that part is touched either by the hand of the operator or by any electrically conductive member held by the hand, such as for example a key. The illuminator of the present invention has no moving switch parts and requires virtually no maintenance. Accordingly, it is an object of the present invention to provide an improved means for locating a keyhole or the like in the dark.

It is another object of the invention to provide an illuminator as aforesaid which is operable by and upon simple touching of any part of the exposed face portion of the utility to which it is applied.

A further object of the invention is to provide an illuminator for keyholes or the like which gives light for the required time and discontinues operation without need for resetting or the like.

Still another object of the invention is to provide an improved illuminator as aforesaid which is inexpensive to manufacture and install, and requires a negligible amount of power and ordinarily involves no cost of maintenance.

Other objects of the invention will be apparent from the ensuing description and claims and from the drawing, wherein:

Fig. 1 is a partly schematic elevational view of a door equipped with an illuminated latch in accordance with the invention;

Fig. 2 is a partly sectioned detail view of the latch of Fig. 1; and

Fig. 3 is a fragmentary sectional view taken about on line III—III of Fig. 2.

Referring more particularly to the drawing, a preferred embodiment of the invention is shown wherein a door is provided with an illuminated latch to facilitate location of the keyhole thereof in the dark. The door 10 is mounted in its jamb 11 by hinges 12 and is provided with a latch 14 which houses a keyhole illuminating lamp 16 in accordance with the invention. Referring to Fig. 2, the illustrated latch 14 has a housing 17 morticed into the side of the door as is customary, and has a spring

2

latch member 18 operable through a spindle 19 by knobs 20. The latch housing also mounts a bolt 22 operable by a key (not shown), which is insertable within the keyhole 24. The latch mechanism includes face plates 26 which are fastened as by screws 28 to the exterior of the door and which together with the knobs 20 form the face portions of the latch.

The lamp 16 comprises a bulb 30 mounted by a base part 32 which in turn is fixed by means of a bracket 34 to the interior of the housing 17 in position to illuminate the interior of the housing so that light is visible from the exterior through the keyhole 24.

The bulb 30 is preferably of the cold cathode glow type such as for example a neon bulb which requires very little power to provide sufficient light to be readily perceptible through the keyhole 24. Such bulbs are operated in series with a resistor which in this case is embodied in the base 32, whereby the lamp as a whole has a very high resistance so that the maximum current drawn by the lamp at the operating voltage is predetermined at a very low value. In tests a so-called "test lamp" such as is commonly used by electricians has been found to be well suited for use in accordance with the invention because it requires little power and has small size while providing ample light for making a keyhole or the like readily visible in the dark. However, it will be understood that the invention contemplates the use of any lamp device which inherently limits the current therethrough to a safe maximum value at the operating voltage. Thus the terms "resistance" and "impedance" are used herein synonymously and in a comprehensive sense to include any suitable current limiting device or circuit characteristic.

The lamp 16 has two leads 36, 38, one of which is electrically connected to the latch mechanism in this example by the lamp bracket mounting screw 40 which is tapped into the interior side wall of the housing 17. The other lead 38 is brought through an aperture 41 in the housing 17 and a passage 42 through the body of the door 10 and is connected to the "hot" or ungrounded side of the ordinary 110-125 volt house lighting circuit. Such conventional house lighting circuits are grounded, usually at the power pole, and herein this grounded power supply is shown diagrammatically as comprising a power transformer 44, the secondary of which is grounded at 46 by a wire 48. While an alternating current supply is shown in the illustrated embodiment of the invention, tests have shown that a direct current supply is equally effective.

In the illustrated embodiment of the invention, all of the latch parts including the knob 20 and the face plate 26 are made of metal and the door 10 and its jamb are made of wood. Thus the face portions of the latch are in circuit with the lamp lead 36 through the lamp bracket 34 and its mounting screw 40, but are insulated from ground by the wooden door 10.

Thus it will be appreciated that the entire lock mechanism including the face plates 26 and the knobs 20 is connected to the "hot" side of the power line through the high resistance lamp 16. Therefore, when a person touches any portion of the latch mechanism, a circuit is completed from the power supply through the lamp to the body of the operator as ground, whereby the bulb 30 glows and sufficient light is seen through the keyhole 24 to enable ready insertion of the key. On account of the high impedance and low power requirements of the lamp 16, no danger is encountered by the person touching the latch mechanism, and the current flowing in the circuit is so small that it cannot be felt. It is not necessary that the operator stand on the ground itself. Tests have shown that the operator may be actually grounded or he may be separated from ground by an insulating material such as for example flooring, carpet, rubber, or the like, as indicated in Fig. 1 at 50.

While the present invention has been illustrated in connection with a plain type lock, it will be appreciated that it is equally applicable to a cylinder lock wherein the light would be arranged to glow through the keyway, and further finds application in the illumination of other similar utilities where a conductive face portion is provided and an opening or receptacle at the point of manual operation of the utility exists.

Thus it will be appreciated that the invention provides an illuminating device which has a simple single series circuit which is completed by the body of the operator as a part of the circuit while subjecting the operator to no danger or discomfort. The device has no moving switch parts or the like, and the neon glow lamp used has indefinite life and would not ordinarily require replacement. Since there are no moving switch parts, no particular part of the device must be grasped, turned or pressed, and any external part of the lamp equipped utility may be touched for operation of the lamp so that such operation is readily instituted in darkened places.

While only one embodiment of the invention has been shown and described in detail, it will be appreciated that the invention may be otherwise embodied within the spirit of the invention and the scope of the appended claims.

What is claimed is:

1. In an apparatus of the class described, a door latch comprising an electrically conductive latch housing including an external face portion comprising a latch handle and a face plate, said housing and its face portion being insulated from ground, a keyhole in said housing extending through said face portion, the entrance to said keyhole being surrounded by the conductive face portion, a high impedance cold cathode glow lamp mounted within said housing in position to illuminate said keyhole, power supply means for said lamp having one side grounded, first circuit means connecting the ungrounded side of said power supply means to one terminal of said lamp, and second circuit means connecting the other terminal of said lamp to said housing.

2. In an apparatus of the class described, a latch comprising an electrically conductive latch structure including an external face portion comprising a latch handle and a face plate, said structure being insulated from ground, a keyhole in said structure extending through said face portion, the entrance to said keyhole being surrounded by the conductive face portion, a neon glow bulb mounted

adjacent said keyhole, grounded power supply means for said bulb, an impedance, and circuit means connecting the anode-cathode terminals of said bulb and said impedance in series between said structure and an ungrounded side of said power supply means.

3. In an apparatus of the class described, a door latch comprising an electrically conductive external face portion insulated from ground, said face portion comprising a latch handle and an extended face plate having an opening forming a keyhole entrance, a cold cathode glow bulb mounted behind said face portion in position to illuminate said keyhole, single power supply means for said bulb having one side grounded, a resistor, and circuit means connecting the anode-cathode circuit of said bulb and said resistor in series between said face portion and the ungrounded side of said power supply means, whereby the illuminating circuit of said bulb may be completed from the power supply through ground to said face portion by a person touching any part of said face portion, including the keyhole entrance edges formed by said face plate.

4. In an apparatus of the class described, a lock structure having a keyway, a conductive exposed part insulated from ground and having an opening for inserting a key into said keyway, a bulb mounted in position to illuminate said opening, said bulb normally operating with a current insufficiently high to cause injury when passed through the human body, and bulb operating circuit means having a corresponding current limiting characteristic, said circuit means comprising said bulb and a power supply means in series, said circuit means being connected to said exposed part at one end and to ground at its other end, whereby the operating circuit of the bulb may be completed and the bulb operatively energized by and upon a person touching any portion of said exposed part, including the edges of said opening of said keyway formed by said exposed part.

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