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Feb. 14, 1950 D. O. GLOVER 2,497,405

# IDENTIFICATION CARD AND MECHANISM

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FIG. 1.

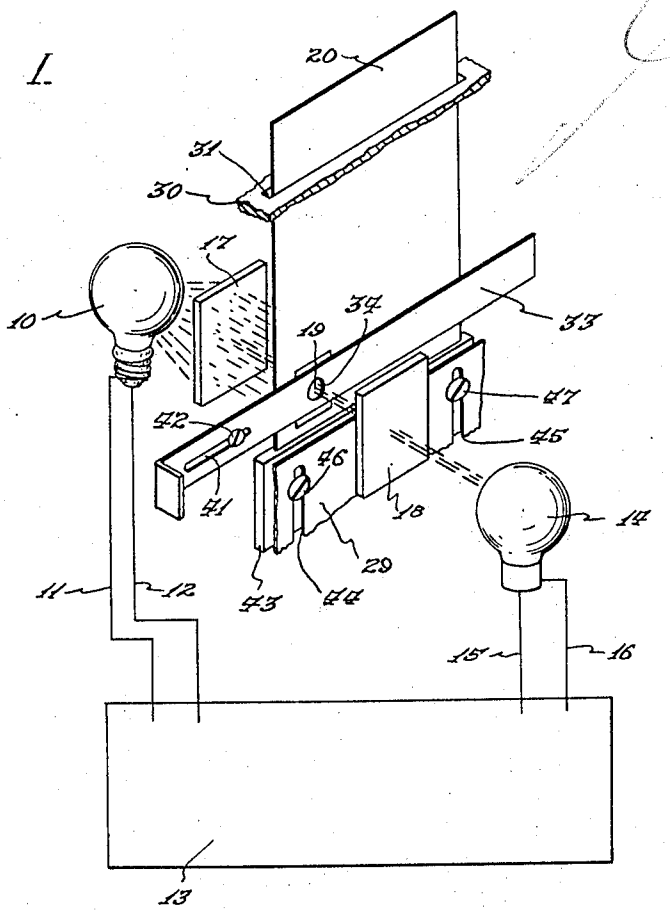



FIG. 2.

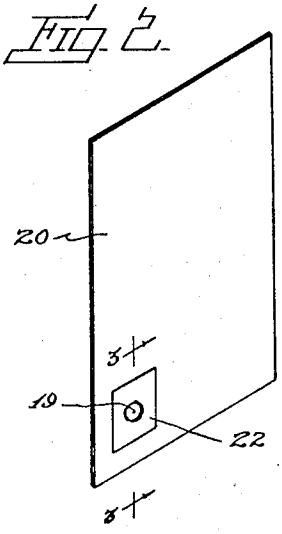



FIG. 4.

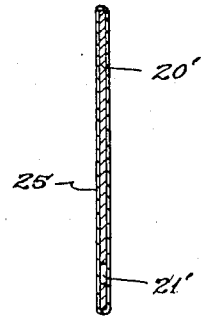
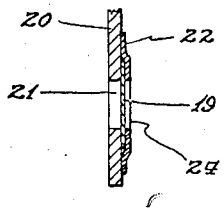



FIG. 3.




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FIG. 5.

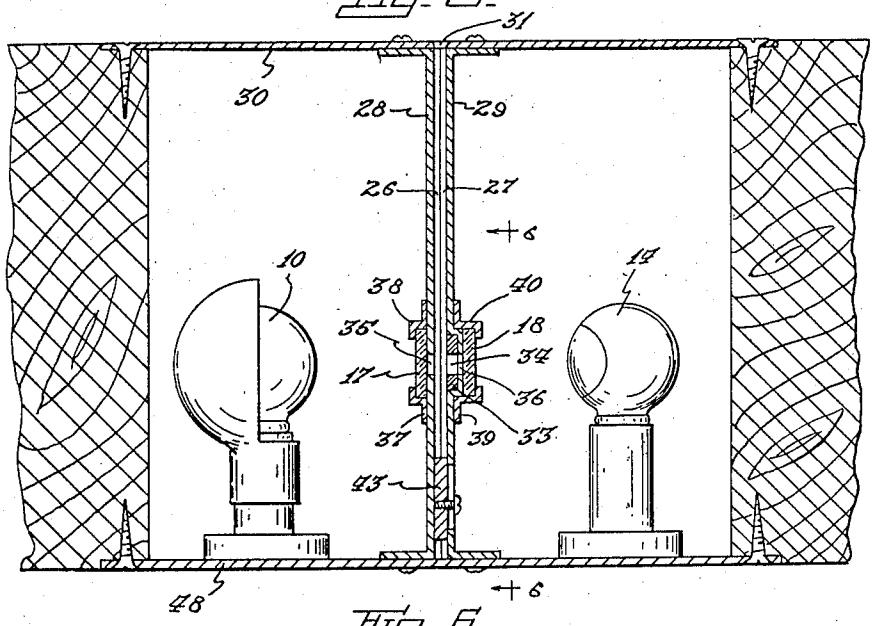



FIG. 6.

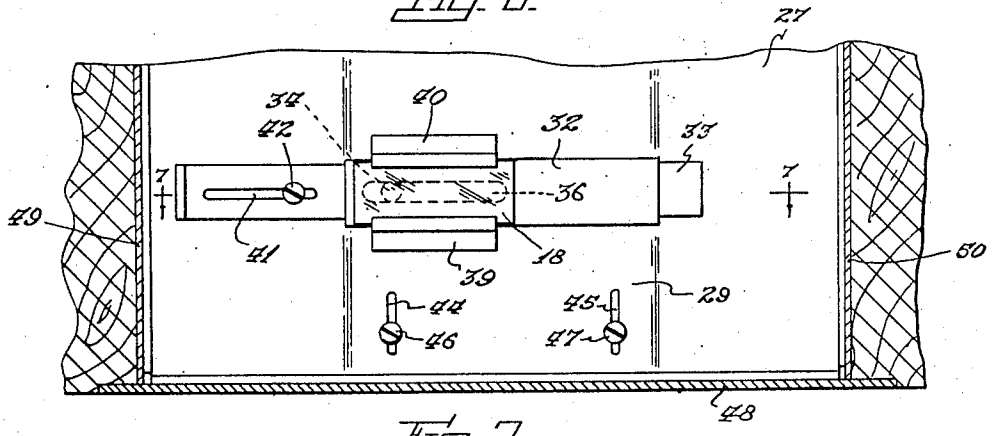
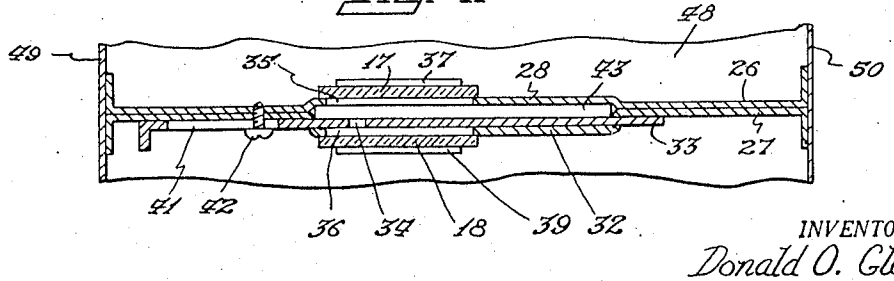



FIG. 7.




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# UNITED STATES PATENT OFFICE

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## IDENTIFICATION CARD AND MECHANISM

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5 Claims. (Cl. 250—230)

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My invention relates to improvements in identification card and mechanism.

In private clubs and organizations it is customary today to issue membership cards which when presented at the door of the club, will establish the right of the bearer of the card to enter the club. Much of the identification is still accomplished by the employment of a doorman who identifies the members or if he does not recognize them, requires presentation of the card. In smaller clubs and organizations this is a very expensive procedure since it requires the maintenance of some one on duty at the door throughout the hours when the club is open. It is the purpose of my invention to provide a novel card and door control mechanism which enables a member having a proper identification card to open the door by simply inserting the card in a slot adjacent to the door. The card and door control mechanism are provided with complementary parts which will make the door releasing mechanism operative only when a card having the proper elements placed thereon in a predetermined position, is inserted in the slot.

My invention is embodied in a card and control mechanism utilizing a light responsive door controlling device of any suitable type. The parts comprising my invention are embodied in means for controlling the passage of light from a light source through a card to a light responsive device such as photoelectric cell which in turn will effect operation of the door opening mechanism only if light of sufficient quantity and not excessive in quantity reaches the photoelectric cell. Circuits responsive to current flows of predetermined amounts are known on the market for the purpose of actuating relays or other electrical equipment which in turn will operate door locks and the like. My invention is applicable to devices of this character and provides a means of delivering a controlled amount of light to a photoelectric cell whereby to cause a predetermined current flow to the operating mechanism.

More specifically it is the purpose of my invention to provide the combination with a light source and a light responsive element of means normally operative to prevent light transmission between the source and the light responsive element and an insertable card member having means thereon for effecting light transmission over the normally blocked path in a controlled amount without the necessity of any movable parts other than the insertable member.

The nature and advantages of my invention will appear more fully from the following description and the accompanying drawings wherein the invention, in its preferred form, is illustrated. The description and drawings are illustrative only and should not be considered as limiting the invention except insofar as it is limited by the claims.

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In the drawings:

Figure 1 is a diagrammatic view of the light control mechanism and card embodying my invention;

Figure 2 is a perspective view of a card having the complementary parts necessary for my invention;

Figure 3 is an enlarged fragmentary sectional view taken on the line 3—3 of Figure 2;

Figure 4 is a transverse sectional view through a modified form of card having the complementary parts necessary for my invention;

Figure 5 is a plan sectional view through a card receiving mechanism embodying my invention showing how the mechanism may be applied to a door jamb or wall alongside the door to be operated;

Figure 6 is a fragmentary sectional view taken on the line 6—6 of Figure 5; and

Figure 7 is a sectional view taken on the line 7—7 of Figure 6.

Referring now in detail to the drawings, my invention embodies a light source 10 which may be a suitable incandescent lamp receiving its power over leads 11 and 12 from a power unit 13. A light responsive element 14 is suitably connected to the power unit 13 by leads 15 and 16. The power unit 13 is supplied with current from the usual available electrical current supply and is adapted to contain the current responsive mechanisms necessary to operate a door lock opening device, or the like in response to variations in current flow through the photoelectric cell 14 or other equivalent light responsive element.

Electrically controlled door locking or opening mechanisms actuated by variations in current flow that are caused by light falling upon a photoelectric cell are well known and in common use in industry today. I have therefore made no attempt to illustrate a specific mechanism of this character since my invention is embodied in the control of the passage of light from the light source 10 to the light responsive element 14.

According to my invention I provide between the light source 10 and the element 14 two polarized glass plates 17 and 18 which are arranged with planes of polarization at right angles to each other so that normally the light from

the light source 10 is blocked entirely from passing through the plates 17 and 18.

I then provide an insertable element 19 on a card 20. The insertable element is of such nature as to effect rotation of the plane of polarization of the polarized light from the plate 17 so that it will not be blocked by the plate 18 and can pass through the plate 18 to the light responsive element 14.

Any suitable material may be used for the element 19 on the card 20. I find that a thin translucent cellulose acetate sheet will effect such correction. Other plastics also act, when inserted between the plates 17 and 18, to cause such a change in the polarized light from the plate 17 as to enable it to pass on through the plate 18.

I may mount the element 19 over an aperture 21 in the card 20 by using an adhesive strip 22, also apertured at 24, to cover the element 19 and adhere to the element 19 and the card 20. This construction is illustrated in Figures 2 and 3 of the drawings. An alternative form of card is provided in Figure 4. Here the card 20' has an aperture 21'. The entire card 20' is encased in an envelope 25 which is of the proper material to effect correction of the light from the plate 17 so that it will pass through the plate 18.

In order to control the quantity or amount of light transmitted through the parts 17—19—18 or 17—25—18, I utilized coloring in the element 19 or 25 to limit the effect of the transmitted light upon the photoelectric cell 14. Thus a card 20' may have an envelope 25 of the right material and the aperture 21' may be in the right place to pass light to the photoelectric cell, but if the envelope 25 is not colored right it may allow too much or too little light to pass to the photoelectric cell for operation of the door control mechanism.

I also provide, in combination with the elements 17 and 18, a means for locating the position that the aperture 21 or 21' of the card must take, when it is inserted between the members 17 and 18, in order to effect transmission of light to the photoelectric cell 14. In Figures 1, 5, 6 and 7, this means is disclosed. I provide two plates 26 and 27 with offset portions indicated at 28 and 29, to form a card receiving space between them. A face plate 30 mounts the plates 26 and 27 on a wall or door jamb and has an aperture 31 leading to the card receiving space. The portion 29 has a cross channel 32 formed therein to receive a sliding bar 33. The bar 33 has an aperture 34 therein of the same size as the aperture 21 in the card 20. The portions 28 and 29 have elongated apertures 35 and 36 therein. The plates 17 and 18 are mounted on the outside of the portions 28 and 29 so as to cover the elongated apertures 35 and 36. Brackets 37 and 38 mount the plate 17 and brackets 39 and 40 mount the plate 18. The bar 33 has an elongated slot 41 therein to receive a screw 42 that is threaded into the plates 26 and 27 for clamping the bar 33 in any desired position.

In order to limit the extent to which a card may be inserted between the plates 26 and 27, I mount a bar 43 between the portions 28 and 29 and provide for adjustment of this bar by slots 44 and 45 in the offset portion 29. Screws 46 and 47 are threaded into the bar 33 through the slots 44 and 45 to clamp the bar 43 in place.

The light source 10 and the photoelectric cell 14 preferably are fixed upon a removable back plate 48 that is fastened to the plates 26 and 27 and also secured to the wall or door jamb in the same manner as the plate 30. By removing the plate 48, ready access is had to the bars 43 and 33 for adjusting them to change the position of the aperture 34 and the depth to which a card can be inserted through the aperture 31. The plates 26 and 27 are mounted between two spacer plates 49 and 50 which are adapted to fit within the aperture provided in the wall or door jamb.



It is believed that the foregoing description is sufficient to enable one skilled in this art to understand my invention. The detailed construction illustrated in Figures 5, 6 and 7 illustrate how the device may be mounted alongside a door to enable the holder of a card to insert the card and cause light to be transmitted from the light source 10 to the light responsive element 14. When the device is used for admission to private clubs and the like, the admission cards will be provided with an aperture 21, which aperture will be located a certain distance from the side edge and end edge of the card. This will enable the holder of the card to align the aperture 21 with the aperture 34 in the bar 33 by inserting the card in the slot provided by the offset portions 28 and 29. Cards of deliquent members who have not been issued the new cards will not work in the slot any more, due to changed location of the aperture 21 and corresponding adjustment of the bars 33 and 43. It is further possible to restrict the possibility of unauthorized duplication of a membership card in the coloring of the elements 19 and 25. By the amount of coloring added or the type of coloring added, I can control the amount of light transmitted to the photoelectric cell 14. This device is not intended to be proof against opening of the door. However, it does provide a simple and effective way for members of private organizations to utilize their membership cards to open a door to the private quarters of the club without having to call an attendant.

Having thus described my invention, I claim:

1. In combination, a light source, a light responsive element, and means to control the passage of light from the source to the element comprising spaced apart light polarizing plates between the source and element having their planes of polarization at right angles to each other normally to prevent light passage from the source to the element, and a card insertible between said plates provided with an aperture through which light may pass and having a translucent sheet covering the aperture, the sheet being of a material capable of correcting the polarization plane of light from the plate closest the light source to cause it to pass through the other plate to the light responsive element.

2. In combination, a light source, a light responsive element, and means to control the passage of light from the source to the element comprising a framework provided with a card receiving slot, means defining a card receiving space extending from said slot, a light source on one side of the space, a photoelectric cell on the other side of the space, a light polarizing plate mounted on said means between the light source and the space, a second light polarizing plate parallel to the first plate and mounted on said means between the space and the photoelectric cell, said plates having their planes of polarization crossed normally to prevent passage of light from the source to the cell, an apertured opaque plate adjustable in a direction parallel to the plates, a card having an aperture therein positioned to align with the aperture in said opaque plate when the card is inserted through the slot into

said space and a translucent sheet on the card extending across the aperture, said sheet operating to correct the polarization of light from the first polarizing plate to cause it to pass through the second polarizing plate.

3. In combination, a light source, a light responsive element, and means to control the passage of light from the source to the element comprising a framework provided with a card receiving slot, means defining a card receiving space extending from said slot, a light source on one side of the space, a photoelectric cell on the other side of the space, a light polarizing plate mounted on said means between the light source and the space, a second light polarizing plate parallel to the first plate and mounted on said means between the space and the photoelectric cell, said plates having their planes of polarization crossed normally to prevent passage of light from the source to the cell, an apertured opaque plate adjustable in a direction parallel to the plates, a card having an aperture therein positioned to align with the aperture in said opaque plate when the card is inserted through the slot into said space and a translucent sheet on the card extending across the aperture, said sheet operating to correct the polarization of light from the first polarizing plate to cause it to pass through the second polarizing plate, said means including an adjustable stop limiting the extent to which a card may be inserted into said space.

4. In a device of the character described, two opaque plates mounted face to face, one of said



plates being offset away from the other intermediate its side edges to provide a card receiving space therebetween, said plates having elongated apertures therein on opposite sides of said space, light polarizing plates covering said apertures, and an apertured opaque plate slidably mounted between said plates for movement in a direction parallel to the long axes of said apertures.

5. In a device of the character described, a light source, a photoelectric cell spaced therefrom, means providing a card receiving slot across the space between the source and the cell, and including an apertured member movable across the slot, a card having an aperture positioned to align with the aperture in said member when the card is inserted in said slot, light polarizing means on opposite sides of said slot operable normally to prevent light from said source from passing to the cell across the slot, and polarization correcting means covering the aperture in said card operable to cause light to pass to said cell when the card aperture is aligned with the aperture in said member.

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