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PUSH-BUTTON ILLUMINATING DEVICE

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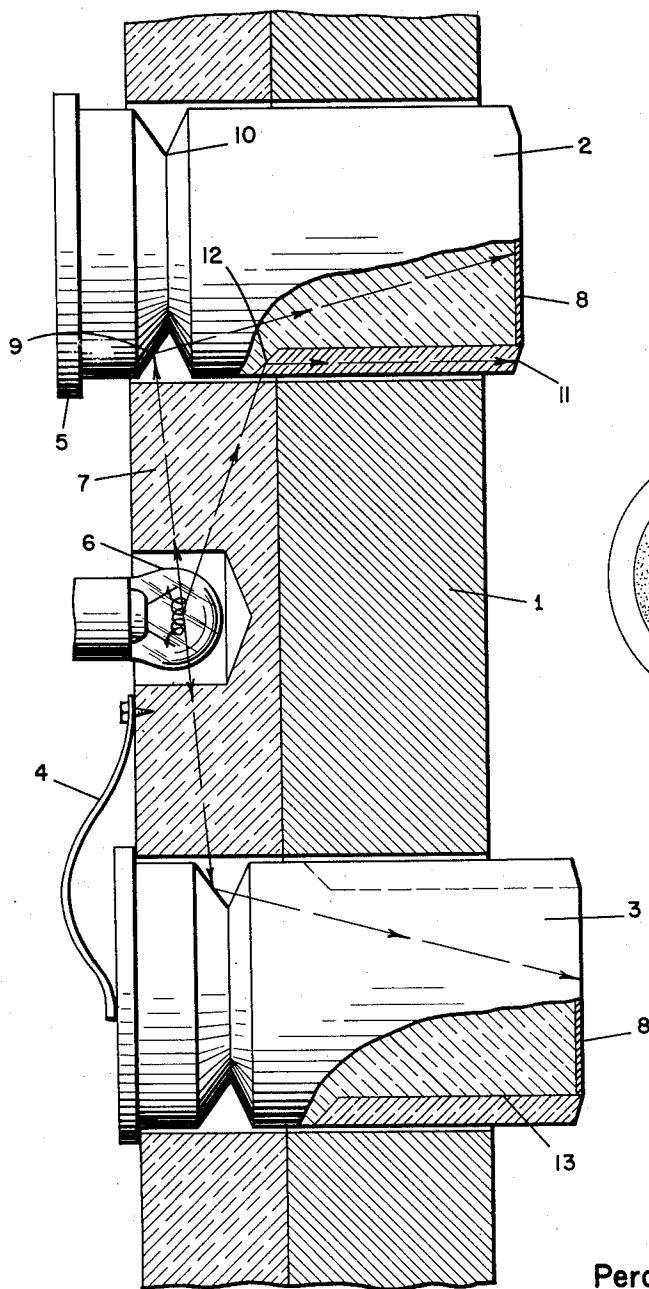


FIG. 1

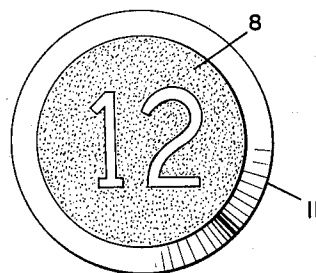


FIG. 2

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PUSH-BUTTON ILLUMINATING DEVICE

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4 Claims. (Cl. 340—380)

The invention relates to an arrangement comprising a push-button and in which the push-button is adapted to be illuminated by a lamp forming part of the arrangement.

This type of illuminated push-button may be used within various technical fields, for instance in circuit breakers, radio apparatus and the like. The following description of the invention is therefore not directed to any special field of application for the push-button but refers only to the push-button proper with its illuminating device.

The invention is based on the assumption that the push-button is made of translucent material, a lamp for illuminating it being placed on the side of the push-button.

According to the invention the push-button is arranged relative to the lamp and a screening member surrounding the push-button in such a manner that the signal image created on the free end surface of the push-button by the illumination changes when the push-button is pressed owing to the axial displacement thereof within the screening member.

On the annexed drawing, FIG. 1 shows a pair of push-buttons, one of which is assumed to be in the operative and the other in the inoperative position. FIG. 2 shows an example of the signal image that can be produced by one of the push-buttons.

In the drawing, 1 designates a panel, which serves in the present case as screening member, a pair of push-buttons 2 and 3 being arranged axially displaceable in the panel. The push-buttons may be urged by springs or similar members towards the outer position, a spring 4 of this type being shown by way of example on the drawing. A flange 5 formed on the push-buttons may be adapted to limit their displacement in one direction; other means that may be of a similar nature but not shown on the drawing can be used for limiting displacement of the push-buttons in the other direction. A lamp 6 is provided for illumination on the push-buttons and it is assumed in the present case that the light of the lamp is conducted to the push-buttons through a disc 7 of the translucent material. This material, as that of the push-buttons 2 and 3, may be of plexiglass.

In the present case it is assumed that the free end of the push-buttons is coated with an opaque layer 8, this layer being broken through in a suitable manner, as indicated in FIG. 2, to form a suitable sign on the free end of the push-button. The central portion of the free end is illuminated by the lamp 6 through light from the lamp being reflected at a reflecting surface 9 which is provided in a notch 10 formed on the push-button. The notch is arranged in such a way that the reflecting surface 9 is constantly illuminated by the lamp 6, whether the push-button is in its operative or in its inoperative position. The sign formed in the layer 8 will therefore be constantly illuminated.

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In the present case the layer 8 extends outwardly to an annular, uncoated portion 11 of the free end of the push-button. This annular portion 11 is adapted to be illuminated by the lamp when the push-button is in its inner position, the light from the lamp being then reflected at a surface 12. This surface is arranged relative to the panel 1, which forms the screening member in such a way as to be cut off from the supply of light when the push-button is in its outer position, as shown on the drawing in the case of the push-button 3. The boundary layer 13 between the central portion of the push-button and the mantle-like portion is assumed to have the property of not letting through the light. It is possible to have several lamps adapted for illuminating the push-buttons from different directions, however, in the majority of cases this will not be necessary owing to the good light-scattering properties of the plexiglass.

As a consequence of the construction described for the push-buttons and the illuminating device, the sign formed on the push-buttons is constantly illuminated, whereas the sign of the push-button that is at the moment in its operative position is surrounded by an illuminated ring. Such a construction is of particular advantage for the controls of electronic air-craft equipment, since the strength of the illumination of the push-buttons may be adjusted so as not to dazzle the pilot at the same time as he obtains, owing to the illuminated ring, an immediate and positive indication of which push-button is actuated.

What is claimed is:

1. Push-button assembly including a push-button of light transmitting material having a visible end and being axially displaceable in a housing comprising a screening member surrounding a part of the push-button, a lamp disposed laterally of the push-button, said push-button having light reflecting surfaces located at at least two axially displaced positions of the push-button for reflecting light from the lamp to mutually different parts of the visible end of the push-button, a first one of said reflecting surfaces being illuminated by the lamp in a first position of the push-button and being shielded from the lamp by the screening member in a second position of the push-button, the second reflecting surface being constantly illuminated in both positions of the push-button.

2. Push-button assembly as defined in claim 1 wherein a first surface part of said visible end, which is illuminated by said reflecting surface in said first position of the push-button, forms a ring surrounding a second surface part of said visible end, which is constantly illuminated by said second reflecting surface.

3. Push-button assembly as defined in claim 2 wherein said second surface part of said visible end is coated with a layer of opaque material, markings being formed through said opaque layer.

4. Push-button assembly as defined in claim 1 wherein a boundary layer inside the push-button separates one light channel comprising said first reflecting surface and said first surface part of said visible end from the rest of the push-button.

References Cited in the file of this patent

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