April 22, 1958 H. L. BONE 2,831,283

THREE-POSITION ILLUMINATED INDICATORS

Filed Oct. 16, 1953

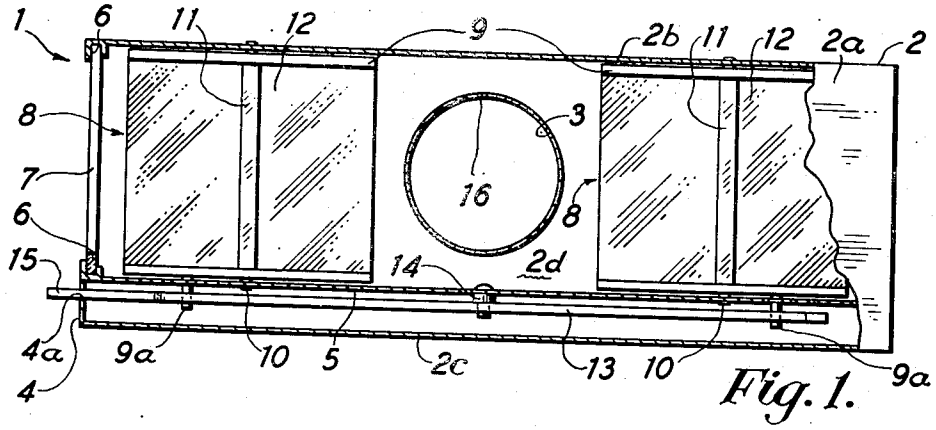


Fig. 1.

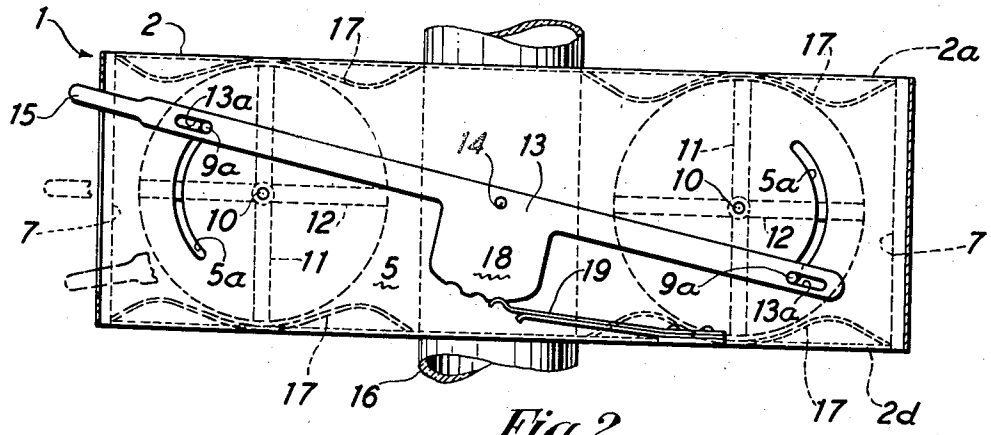


Fig. 2.

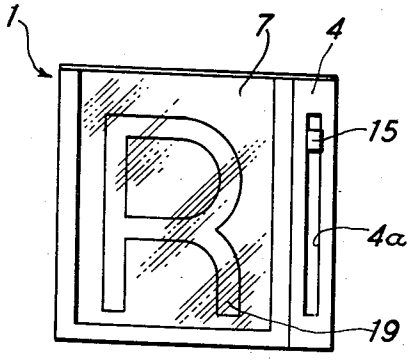


Fig. 3.

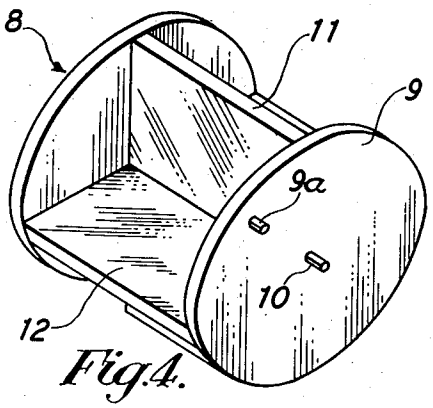


Fig. 4.

INVENTOR.
Herbert L. Bone.
BY
W. L. Strat.
HIS ATTORNEY

United States Patent Office 2,831,283 Patented Apr. 22, 1958

2,831,283

THREE-POSITION ILLUMINATED INDICATORS

Herbert L. Bone, Forest Hills, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa., a corporation of Pennsylvania

Application October 16, 1953, Serial No. 386,474

3 Claims. (Cl. 40—132)

My invention relates to illuminated display panels, and particularly to a small, compact illuminated indicator for use in a display panel wherein a plurality of indicators is arranged in tiered banks or adjacent columns.

An illuminated indicator in accordance with my present invention is well adapted for use in a display panel or board located at information centers in railroad terminals or airports where train or plane information may be displayed for the general public using such facilities, or for the personnel primarily concerned with train or plane accommodations or movements. More particularly an illuminated indicator embodying my invention may be used in a display panel or board forming a part of an accommodation reservation system, such, for example, as a Pullman reservation board whereby the accommodations provided on any given train may be displayed as well as which accommodations are still available.

An object of my present invention is to provide a compact, illuminated indicator having few and simple parts which are relatively inexpensive to manufacture and readily assembled.

Another object of my invention is to provide an illuminated indicator wherein a displayable symbol or character may be illuminated in a selectable manner; or darkened, to convey a particular meaning or interpretation regarding such symbol or character.

Still another object of this invention is to provide a two-faced indicator having a displayable symbol or character on opposite sides of the indicator, both symbols or characters being illuminated simultaneously in the identical selectable manner from a common light source.

Yet another object of my invention is to provide an illuminated indicator of the character indicated which is adapted for mounting in tiered banks or juxtaposed columns to form a display panel or board which may be viewed from opposite sides, the displayable indicia of a plurality of indicators being illuminated from a common light source.

According to my invention, I provide an oblong open-ended casing preferably made of metal for the indicator, the two open ends of the casing being provided with suitable screens made of either a translucent or transparent material. Each of the screens of the indicator has either etched thereon or applied thereto in a suitable manner a symbol or character to be illuminated by back-lighting, the symbols on both screens being the same.

To illuminate the symbols or characters carried by the indicator screens, I provide a light source at the center of the casing, the beams of light from the source passing through both screens to back-light the symbols or characters. In order that a plurality of such indicators may be used in tiered banks or adjacent columns and illuminated from a common source of light, as for example, a fluorescent light tube, aligned apertures are provided in two sides of the indicator casing for insertion of such a light tube, the light tube passing through a number of such indicators depending upon the length of the tube.

To selectively illuminate the indicator screens in different characteristic ways, I provide each indicator with two sets of filters, a set being interposed between the common light source of the indicator and each of the indicator screens. Each set of filters comprises two dissimilar light filters secured at right angles to each other to an oscillatory member, as for example, a reel. The two oscillatory members are interconnected by an extended link for simultaneous actuation, the extending end of the link passing through a slotted aperture in one face of the casing to form an operating lever for the indicator. The interconnecting link is suitably pivoted within the indicator casing and is connected to both oscillatory members by pin and slot connections. The link is provided with a three-position detent means to hold the filters in each of three selectable angular positions.

In one extreme position of the oscillatory members of an indicator, similar light filters of each set of filters are interposed between the light source and the screens of the indicator to illuminate the screen in a characteristic manner. In the other extreme position of the oscillatory members, the other light filters of the two sets of filters are interposed between the light source and the indicator screens to illuminate the screens in a different characteristic manner. In the intermediate position of the oscillatory members, both filters of each set of filters are interposed between the light source and the indicator screens. Depending upon the type of filter used in each set of filters, either as to color or material or both, the indicator screens may be darkened or illuminated in a third characteristic manner.

Other objects and advantage of my invention will become apparent as the description proceeds.

I shall describe one form of an indicator embodying my invention, and shall then point out the novel features thereof in claims.

In the accompanying drawings wherein similar reference characters designate corresponding parts throughout the several views,

Fig. 1 is a top plan view of an indicator embodying my invention, the top plate of the indicator being broken away and portions of the indicator shown in section.

Fig. 2 is a side view of the indicator illustrated in Fig. 1, the side wall being removed to illustrate certain features of construction to better advantage.

Fig. 3 is a front elevational view of my novel indicator, while

Fig. 4 is an isometric view of a filter element forming a part of the illustrated indicator.

Referring now in detail to the drawings, the reference numeral **1** designates an illuminated indicator embodying my invention. The indicator **1** comprises an oblong casing **2** having a top plate **2***a*, two side walls **2***b* and **2***c* and a bottom plate **2***d*. For purposes hereinafter appearing, the top and bottom plates **2***a* and **2***d* are each formed with a circular aperture **3**. The ends of the side wall **2***c* are formed with inwardly extending flanges **4** which support a plate **5** spaced from but parallel to the side wall **2***c*. The outer ends of the plate **5** and the ends of side wall **2***b* are formed with suitable grooves or slots **6** for supporting translucent or transparent screens **7** to close both ends of the indicator casing **2**.

Rotatably mounted within the casing **2** adjacent the screens **7** are two similar filter elements **8**. Each of the filter elements comprises a reel **9** having a shaft **10** journaled in the side wall **2***b* and plate **5**, and two dissimilar light filters **11** and **12** secured to the reel at right angles to each other. The two reels **9** are interconnected for simultaneous rotation by a pivoted lever **13**, the lever being pivoted as at **14** to the plate **5** between the plate **5** and the side wall **2***c* of the indicator casing **2**. The lever **13** is formed with elongated slots **13***a*

which receive the pins 9*a* secured in the sides of the reels 9. The plate 5 of the casing is formed with two arcuate slots 5*a* through which the reel pins 9*a* extend to engage the slots 13*a* of the pivoted lever. One end of the pivoted lever is extended and passes through an elongated slot 4*a* provided in one of the flanges 4 of the side wall 2*c*, the extending end forming an operating lever 15.

The reel pins 9*a* are secured to the sides of the reels approximately midway between the planes of the two light filters 11 and 12. The two reels 9 of the filter elements are so interconnected by the pivoted lever 13 that the planes of the filters 11 and of the filters 12 of both filter elements are parallel to each other, respectively. It will be apparent therefore that as the operating lever is moved from one position to another the two reels will be rotated simultaneously in the same direction, the like filters of each reel remaining parallel to each other. While I have illustrated the filter elements as comprising a reel 9 and two light filters 11 and 12 secured to the reel along two mutual perpendicular diameters of the reel, it will be understood that only a quadrant of the reel may be used, the shaft 10 in this instance being journaled adjacent the bottom plate 2*d* of the casing 2.

A light source 16 is provided for the indicator casing located between the two filter elements 8. As herein disclosed the light source provided is a fluorescent tube which passes through the apertures 3 formed in the top and bottom plates 2*a* and 2*d* of the casing. It will be understood that other forms of illumination may be used, that the indicator herein described is not necessarily limited to one wherein stacked or juxtaposed indicators are illuminated from a common light source but such indicators may be provided with individual illuminating means. To prevent the light rays from the light source 16 from straying past the filter elements 8, two light shield plates 17 are provided for each reel, the light shield plates being bowed to accommodate the peripheral edges of the reels.

In order to selectably illuminate the screens 7 of the indicator in different characteristic ways, the light filters are positioned with respect to the light source in three different positions. The filter elements 8 are interconnected by the lever 13 in such a manner that in one extreme position of the operating lever the light will pass through the filters 11 and onto the screens 7, the planes of the filters 11 being transverse to the light rays. In the other extreme position of the operating lever 15, the planes of the filters 12 are normal to the light rays to illuminate the screens in a second characteristic manner. In an intermediate position of the control lever 15, the light rays pass through both filters 11 and 12 to provide still a third type of indication. Thus with a filter element provided with two dissimilar light filters at right angles to each other and a rotation involving only 90° I am able to obtain three dissimilar types of indication on the screens 7 of the indicator. To aid in positioning and holding the filter elements in the three positions, I provide the operating lever 13 with a three-position detent 18 and a detent spring 19 secured to the bottom plate 2*d* for cooperation with the detent 18.

The screen 7 provided for the indicator described may be of either a transparent or translucent material. A character or symbol 19 may be etched in the screen, painted on or otherwise applied to the screen, or the screen may be made opaque with just the symbol or character being transparent or translucent. The filters 11 and 12 may be of any suitable material, such as glass, and are preferably of different primary or complementary colors. By specifying that the light filters 11 and 12 may be of colored glass, I do not necessarily limit myself to such filters since those versed in the art will appreciate that polarized and birefringent materials may be used as filters.

One type of a display panel in which my novel indicators may be incorporated is a Pullman reservation panel for indicating the types of accommodations provided on a given train. Assuming that each of the indicators of such a panel represents a particular type of accommodation provided, as for example, a roomette; by positioning the operating lever of the particular indicator to one of its three possible positions an indication may be made as to whether such accommodations are still available on that particular train. In such a display panel, the filters 11 and 12 of the filter elements may be colored green and red, respectively. In the one extreme position of the operating lever 15 as illustrated in Fig. 2, the "R" symbol 19 of the indicator would show green, indicating possibly, that such space is available. In the other extreme position of the operating lever, the indication would be in red to indicate possibly that only one space of the designated type is available. Should the control lever be moved to its intermediate position, the light rays pass through both the red and green filters and no light appears on the screen 7 since these colors are selected so that together they filter out all light. A darkened symbol or character may then indicate that no more space of the designated type is available on the particular train.

The indicator thus provided has many advantageous uses in display boards or panels. The rectangular cross section of the indicator described permits a plurality of such indicators to be stacked either unsupported or supported in a grid. The apertures provided in the indicator casing for the accommodation of a fluorescent tube may be either in the top and bottom plates of the indicator or in the side walls, whichever is the more convenient for the particular panel board desired. The double-ended indicator lends itself admirably to a centrally located panel board which may be viewed from both sides, the indications of each screen of an indicator being the same and changeable simultaneously. In providing a filter element with two dissimilar light filters at right angles to each other, I am able to obtain three distinctive indications by oscillating the element only 90°. Such a filter element reduces the overall size of an indicator so that I am able to provide a very small compact indicator comprising very few and simple parts.

Although I have herein shown and described only one form of an indicator embodying my invention, it is understood that various changes and modifications may be made therein within the scope of the appended claims without departing from the spirit and scope of my invention.

Having thus described my invention, what I claim is:

1. An indicator comprising, a four-sided casing open at opposite ends, two opposite sides of said casing being formed with aligned apertures, a viewing screen for each of the open ends secured to the casing, a light source receivable within the apertures for illuminating both of said screens, two similar filter elements within said casing, a filter element being interposed between each of said screens and said light source; said elements each comprising an oscillatory member, and two dissimilar light filters secured to each of the oscillatory members and disposed at right angles to each other; a pivoted lever interconnecting the two oscillatory members for moving said members simultaneously between two extreme positions a quadrant apart, said members being so connected that similar filters of each filter element are at all times in parallel planes, the one similar filter of each element being in the paths of light from said source when said members are in their one extreme positions and the other similar filter of each element being in the paths of the light when said members are in their other extreme positions, both filters of both elements being in the light paths when said members are in positions intermediate the extreme positions, means for moving said lever, and means

for holding said lever in its two extreme and intermediate positions.

2. An indicator comprising, a four-sided casing open at opposite ends, two opposite sides of said casing being formed with aligned apertures, a viewing screen for each of the open ends secured to the casing, a light source receivable within the apertures for illuminating both of said screens, two similar filter elements within said casing, a filter element being interposed between each of said screens and said light source; said elements each comprising an oscillatory member, and two light filters of dissimilar colors secured to each of the oscillatory members and disposed at right angles to each other; and a pivoted lever interconnecting the two oscillatory members for moving said members simultaneously between two extreme positions a quadrant apart, said members being so connected that similar filters of each filter element are at all times in parallel planes, the one similar filter of each element being in the paths of light from said source when said members are moved by the lever to their one extreme positions and the other similar filters of each element being in the paths of the light when said members are in their other extreme positions, both filters of both elements being in the light paths when said members are in a position intermediate the extreme position, the colors of the filters being such that no light passes through the filters of said elements to illuminate the screens when said members are moved to their intermediate positions.

3. In an indicator having a screen and a light source

for illuminating the screen, the combination comprising a member mounted between the screen and the light source for oscillation about an axis transverse to the path of light illuminating said screen, said member being movable between two extreme positions a quadrant apart, two light filters of dissimilar colors secured to the oscillatory member at right angles to each other and transversely to the light path, one of said filters being in the path of the light beams from the light source when said member is in one extreme position, the other of said filters being in the path of the light beams when said member is in its other extreme position, both of said filters being in the path of the light beams when said member is intermediate its two extreme positions, the colors of the filters being such that no light passes through the filters when said member is in its intermediate position, means for oscillating the member between its extreme positions, and detent means for holding said member in its selected position.

References Cited in the file of this patent

UNITED STATES PATENTS

352,567	Parsons	Nov. 16, 1886
1,272,593	Wilson	July 16, 1918
1,617,671	Daugherty	Feb. 15, 1927
2,036,032	Fioravanti	Mar. 31, 1936
2,293,990	Lewis	Aug. 25, 1942
2,346,988	Noel	Apr. 18, 1944
2,583,055	Kress et al.	Jan. 22, 1952