

[54] ANNUNCIATOR  
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317/99, 340/381  
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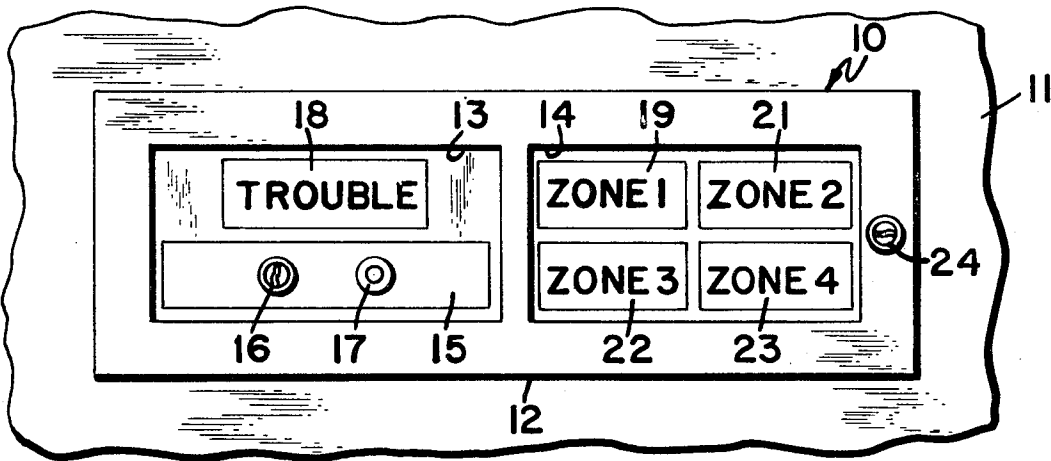
[57] ABSTRACT

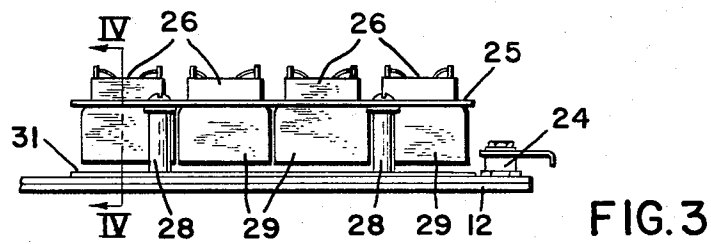
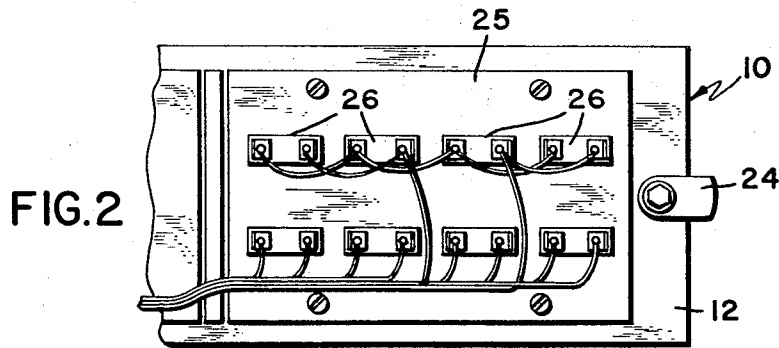
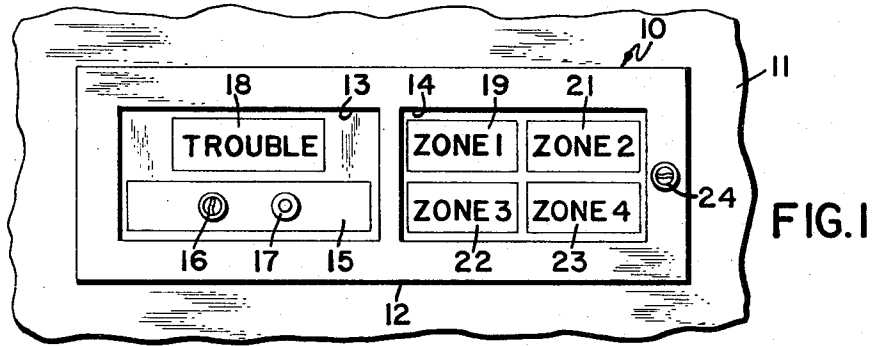
This invention relates to an annunciator and, more particularly, to apparatus for indicating the condition of remote stations, the apparatus consisting of a face plate having a plurality of windows behind each of which is a lamp.

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4 Claims, 5 Drawing Figures

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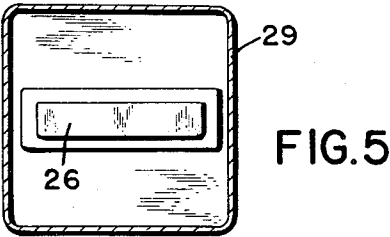
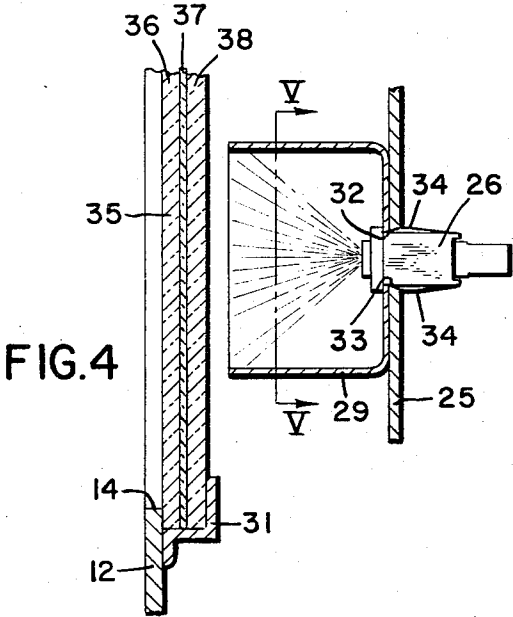
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## ANNUNCIATOR

## BACKGROUND OF THE INVENTION

It is common practice to manufacture visual indicators so that an unusual condition of a remote station appears as a lighted window. Such indicators or annunciators have suffered from a number of deficiencies. For one thing, it has been difficult to obtain a window with lettering that does not show when there is no light behind it. Also, it is desirable to use a large number of lighting units behind the window and to use more than one unit for a single indication, as when a long word is used. This procedure allows the manufacturer to furnish a custom display without keeping a large number of annunciators in stock; in other words, only a basic annunciator need be made. When a plurality of small light units are combined for illuminating a large area, problems are presented by the shadows between the lighting units. It is difficult to illuminate a large area evenly. Also, since some of the lighting units may be operative for long periods of time, there is a tendency in the prior art devices to develop heat problems. For instance, the quickest and least expensive way to provide indicia for the illuminated areas is by use of the photographic process; where the glass in the window heats up, however, the emulsion on the film deteriorates. These and other difficulties experienced with the prior art devices have been obviated by the present invention.

It is, therefore, an outstanding object of the invention to provide an annunciator capable of being adapted to a large number of indicating variations.

Another object of this invention is the provision of an annunciator in which dark areas between lighting units are eliminated, so that a large area can be evenly illuminated.

A further object of the present invention is the provision of an annunciator constructed so that the indicating window is not heated.

It is another object of the instant invention to provide an annunciator in which the indicia is not evident unless illuminated from the rear.

A still further object of the invention is the provision of an annunciator in which indicia can be used in the form of photographic film without danger of deterioration of the emulsion.

With these and other objects in view, as will be apparent to those skilled in the art, the invention resides in the combination of parts set forth in the specification and covered by the claims appended hereto.

## SUMMARY OF THE INVENTION

In general, the invention consists of an annunciator having a housing with a front panel formed with a plurality of apertures. A translucent element covers each aperture and a plate is mounted on the rear surface of the panel in spaced, parallel relationship thereto. A box lies behind each aperture between the panel and the plate. Matching apertures are provided on the plate and the box and a lamp is mounted in each set of matching apertures.

## BRIEF DESCRIPTION OF THE DRAWINGS

The character of the invention, however, may be best understood by reference to one of its structural forms, as illustrated by the accompanying drawings, in which:

FIG. 1 is a front elevational view of an annunciator embodying the principles of the present invention,

FIG. 2 is a rear elevational view of the annunciator,

FIG. 3 is a plan view of the annunciator,

FIG. 4 is a sectional view of the annunciator taken on the line IV—IV of FIG. 3, and

FIG. 5 is a vertical sectional view of the annunciator taken on the line V—V of FIG. 4.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring first to FIG. 1, which best shows the general features of the invention, the annunciator, indicated generally by the reference numeral 10, is shown mounted on a wall 11. Lying forwardly of the wall 11 and larger than the aperture in the wall is a front panel 12. The panel is provided with two rectangular apertures 13 and 14. In the aperture 13 is carried a plate 15 on which is mounted a key-operated switch 16 and a pushbutton switch 17; also carried in the aperture 13 is an indicating element 18.

In the aperture 14 are carried indicating elements 19, 21, 22, and 23 bearing indicia indicative of remote stations ZONE 1, ZONE 2, ZONE 3, and ZONE 4, respectively. At the right hand end of the panel it is provided with a key-operated lock 24 for connecting it to an outlet box, not shown, mounted in the wall.

In FIG. 2 it can be seen that a plate 25 is mounted rearwardly of the panel 12 and carries eight lamps 26, each of which is connected by wires into a cable 27.

FIG. 3 shows that the plate 25 is located spaced from and parallel to the front panel 12. It is held in that position by four posts 28. Between the panel and the plate lie cells 29, one associated with each of the lamps 26. On the rear surface of the front panel is carried a frame 31 for carrying window elements, as will be explained further hereinafter.

Referring now to FIGS. 4 and 5, it can be seen that the cell 29 is a one-piece sheet metal stamping of square cross-section with the open side facing toward the panel 12. Preferably, the inner surface is provided with a reflective coating, such as white baked enamel. The back wall of the cell is provided with a rectangular aperture 32, while the plate 25 is provided with a matching aperture 33 through which the lamp 26 extends. Each lamp is of the incandescent type and has a body which fits exactly in the apertures 32 and 33; from each side of the body extend protuberances 34 which lock the lamp 26, cell 29, and plate 25 together tightly.

Lying in the aperture 14 in the panel 12 and held in place by the frame 31 is a window 35 consisting of a lamination of a clear plexiglas sheet 36, an indicia-bearing sheet 37, and a white opaque plexiglas sheet 38. The sheet 37 is, in the preferred embodiment, a photographic film in black-and-white carrying in its emulsion black lettering forming the various indicia, i.e., ZONE 1, etc., and a black background outlining the indicating elements 19, 21, 22, and 23. The open end of each cell 29 lies a substantial distance from the rear surface of the window 35 (that is to say, the rear surface of the sheet 38).

The operation of the apparatus will be readily understood in view of the above description. When a lamp 26 is energized through its wires by way of the cable 27, its light fills the cell 29. The light is reflected forwardly toward the window 35, passes through the sheet 38 (which serves to diffuse it), passes through the film 37, and then passes through the clear sheet 36. The indicia becomes very evident to the beholder. If it is desired that the indicia cannot be seen at all if not illuminated from the rear, it is only necessary to reverse the sheets 36 and 38. Because of the gap between the cell 29 and the window 35, some of the hot air generated by the lamp 26 flows out of the cell through the gap and is distributed throughout the cabinet. The majority of the heat generated, however, is conducted through the base of the lamp inside of the cabinet. This minimizes the heat built up inside of the cell and permits one to use photographic film for the indicia. The window 35 does not become heated and there is no danger of damage to the emulsion of the sheet 37. Furthermore, because the forward edge of the cell 29 is substantially spaced from the window, there is no shadow that appears on the window if, as is true in the present case, two cells are used to illuminate a single indicating element. The element is evenly illuminated from the rear and the line of the edge of the cell does not appear at the front of the annunciator. In this way, almost any arrangement of mask (provided by the middle sheet 37) can be used. This means that the manufacturer needs to manufacture only one annunciator; variations for particular users' needs can be brought about by the simple expedient of printing a desired pattern of masking and indicia.

It is obvious that minor changes may be made in the form and construction of the invention without departing from the material spirit thereof. It is not, however,

desired to confine the invention to the exact form herein shown and described, but it is desired to include all such as properly come within the scope claimed.

The invention having been thus described, what is claimed as new and desired to secure by Letters Patent is:

1. An annunciator, comprising:

- a. a housing,
- b. a panel forming the front of the housing, the panel being formed with a plurality of apertures,
- c. a translucent element covering the apertures,
- d. a plate mounted at the rear of the panel in spaced, parallel relationship thereto and having an aperture corresponding to each aperture in the panel,
- e. a box lying behind certain of the apertures between the panel and the plate, each box being an open-sided cell, the edge of the open side lying a substantial distance from the translucent element, and
- f. a lamp mounted in the box and lying entirely within the box.

2. An annunciator as recited in claim 1, wherein the translucent element is a sandwich formed of a layer of transparent plexiglas and a layer of colored plexiglas with a film which carries indicia interposed between the layers.

3. An annunciator as recited in claim 1, wherein each box consists of an integral stamping whose inner surface is provided with a reflective coating.

4. An annunciator as recited in claim 3, wherein the bottom of the box is provided with a rectangular aperture, wherein the plate is provided with an exactly similar aperture, and wherein the lamp has a body which fits snugly in the apertures and locks the box and plate together so that the box is supported on the plate by this means only.

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