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CONTROL APPARATUS

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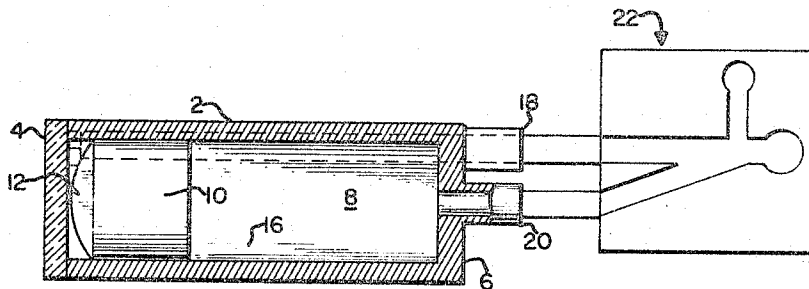


FIG. 3

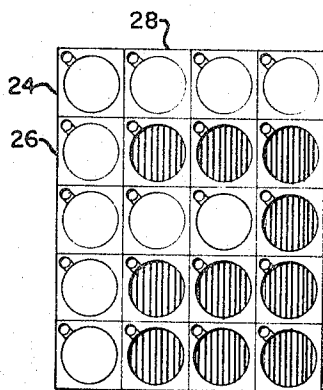


FIG. 4

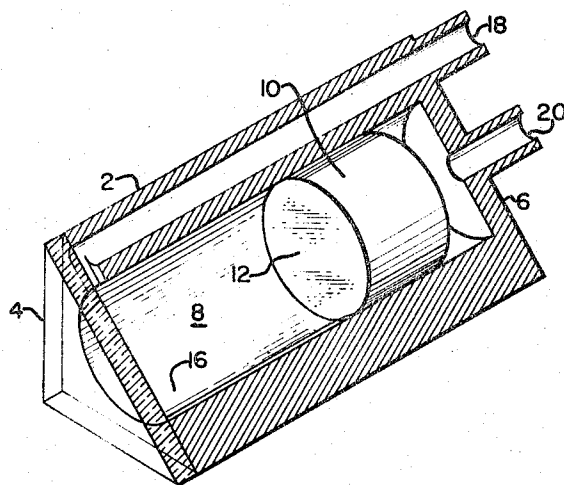


FIG. 1

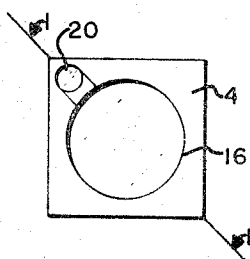


FIG. 2A

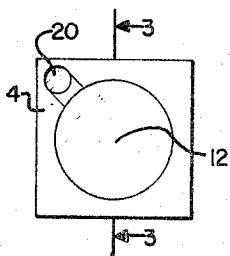


FIG. 2B

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CONTROL APPARATUS

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ABSTRACT OF THE DISCLOSURE

This invention pertains to a unique structure in which a slideable member is actuated to and from an indicating position under the influence of a pressure differential between two fluid ports located at opposite ends of a chamber. The indicator is of a shape which is adaptable for stacking in an array and is unitary in nature so that elements of the array may be removed and inserted individually.

This invention relates to control apparatus and more particularly to an annunciator which is responsive to fluid pressure.

It is a principal object of the invention to provide a fluid pressure annunciator which is reliable, simple in structure and inexpensive to produce.

One of the principal problems of prior art annunciators has been their general inability to be useful either singly for individual indication or stacked jointly for array type indication. Prior art pneumatic annunciators when used singly have been hindered by the necessity for pneumatic connection near the front of the indicator which produces a protruberance preventing the annunciator from being array stacked with other annunciators. Prior art array stacked annunciators have been permanently joined in the array which prevents individual use and hinders removal for repair and the like.

It is therefore an object of the present invention to provide a pneumatic annunciator which can be used alone but which is so constructed that neat array stacking is easily accomplished and when so stacked, each unit is readily removable for easy maintenance.

Briefly the invention comprises a housing with first and second ends. The first end is transparent to permit viewing of an elongated chamber within the housing. Located in the chamber is a sliding member which can be viewed when it is proximate the transparent end, but is hidden by shadows when moved proximate the second end. Activation of the member is by fluid pressure routed from ports located in the second end and extending through the housing to the chamber proximate the first and second ends with no external protruberance.

Various other objects, advantages, and features of novelty, not individually enumerated above, which characterize my invention are pointed out with particularity in the claims hereto and forming a part hereof. However, for a better understanding of the invention, its advantages, and objects attained by its use, reference should be had to the subjoined drawing, which forms a further part hereof, and to the accompanying descriptive matter, in which there is illustrated and described a preferred embodiment of my invention.

One embodiment of the invention is shown in the accompanying figures in which:

FIGURE 1 is a view on the line 1—1 of FIGURE 2A showing an annunciator embodying the novel features of the invention;

FIGURES 2A and 2B are full front views showing the two possible indicating conditions;

FIGURE 3 is a view on the line 3—3 of FIGURE 2B and showing the annunciator connected to a fluid means; and

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FIGURE 4 is the front view of an array formed by individual annunciator elements.

In the drawings a housing 2 is shown having a transparent first end portion 4 and a second end portion 6, between which is a chamber 8. Within the chamber 8 is located a sliding member 10 with a colored surface 12 which can be easily seen through the transparent end 4 when the member 10 is proximate end 4, but which is obscure when member 10 is moved proximate end 6. The reduction in visibility is a result of the shading effect of the chamber surface 16, which may be made non-reflective to further reduce the light reaching the colored surface 12. Surface 12 may be rounded to scatter light to the chamber surface 16 when the member 10 is proximate end portion 6 and also to provide space when member 10 is proximate end 4 for a pneumatic signal to push member 10 toward end 6.

Activation of member 10 is occasioned by fluid pressure. Referring to FIGURE 3, the second end portion 6 has a first port 18 and a second port 20 passing through it. The second port 20 enters the chamber proximate the second end portion 6 while the first port 18 passes through the body of the housing to enter chamber 8 proximate the first end portion 4. The square crosssection shown allows port 18 to be located in a corner and to bypass the length of chamber 8 without any external piping or protruberances. Thus the ports operable to apply pressure to the two ends of chamber 8 do not disturb the symmetrical crosssection of the housing thereby allowing neat array stacking as well as easy manufacture and use. In operation, fluid pressure applied to port 18 will cause member 10 to assume a position proximate end portion 6 while pressure applied to port 20 will cause member 10 to assume a position proximate to a portion 4. The ports 18 and 20 may be connected to a fluid pressure means such as a fluid switch 22 which is connected to a source of pressure not shown.

Referring to FIGURE 4, individual annunciators 24, 26, 28, may be array stacked to enable letter and numeral display.

As seen the square configuration lends itself to neat vertical and horizontal rows in the array and yet each unit may be individually removed merely by moving the unit perpendicular to the plane of the paper. As seen we have thus provided an annunciator which, because of the simplicity of design and absolute minimum of moving parts is reliable, convenient to use, the inexpensive to produce.

It is to be understood that the above-described arrangements are illustrative of the application of the principles of the invention. Other arrangements may be devised by those skilled in the art without departing from the spirit and scope of the invention. For example the indicator may be operated from a source of vacuum rather than pressure and liquid may be used rather than pneumatics. Also, the transparent end portion may be curved to allow viewing from the side. We therefore intend only to be limited by the following claims. We claim as our invention:

1. An annunciating device comprising a housing having first and second end portions and a chamber between said end portions, said first end portion being transparent and said second end portion having first and second pneumatic ports passing through it, said first port extending to said chamber only proximate to said first end portion and said second port entering said chamber only proximate to said second end portion,

a member located in said chamber which is slideable between a first position proximate to the transparent end portion and a second position proximate to the second end portion, activation to said first and second positions being occasioned by supplying a differential

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in pressure between said first and second ports respectively.

2. Apparatus according to claim 1 wherein said first port extends longitudinally adjacent said chamber within the housing.

3. Apparatus according to claim 1 wherein said member has a curved surface that can be seen through said first end portion when said member is in said first position.

4. Apparatus according to claim 2 wherein said member has a curved surface that can be seen through said first end portion when said member is in said first position.

5. Apparatus according to claim 1 wherein said chamber has a non-reflective surface.

6. Apparatus according to claim 4 wherein said chamber has a non-reflective surface.

7. Apparatus according to claim 1 wherein said housing has a square cross section to permit array stacking.

8. Apparatus according to claim 6 wherein said housing has a square cross section to permit array stacking.

9. Apparatus according to claim 1 and including fluid pressure means connected to said first and second ports supplying pressure to said first port or said second port in accordance with a variable condition.

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10. Apparatus according to claim 8 and including fluid pressure means connected to said first and second ports supplying pressure to said first port or said second port in accordance with a variable condition.

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