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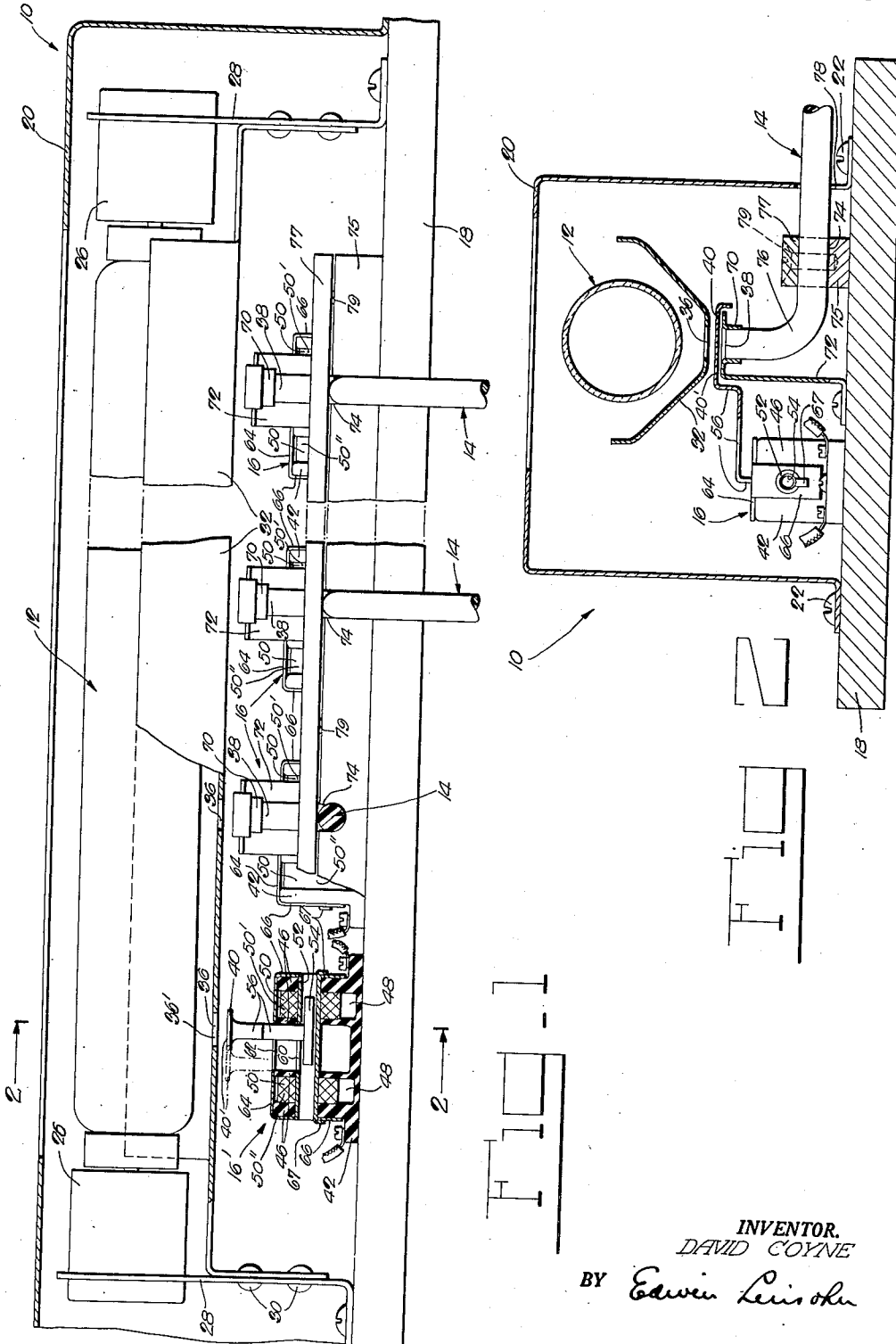
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ANNUNCIATOR FOR ELEVATORS AND THE LIKE

Filed May 3, 1948

3 Sheets-Sheet 1



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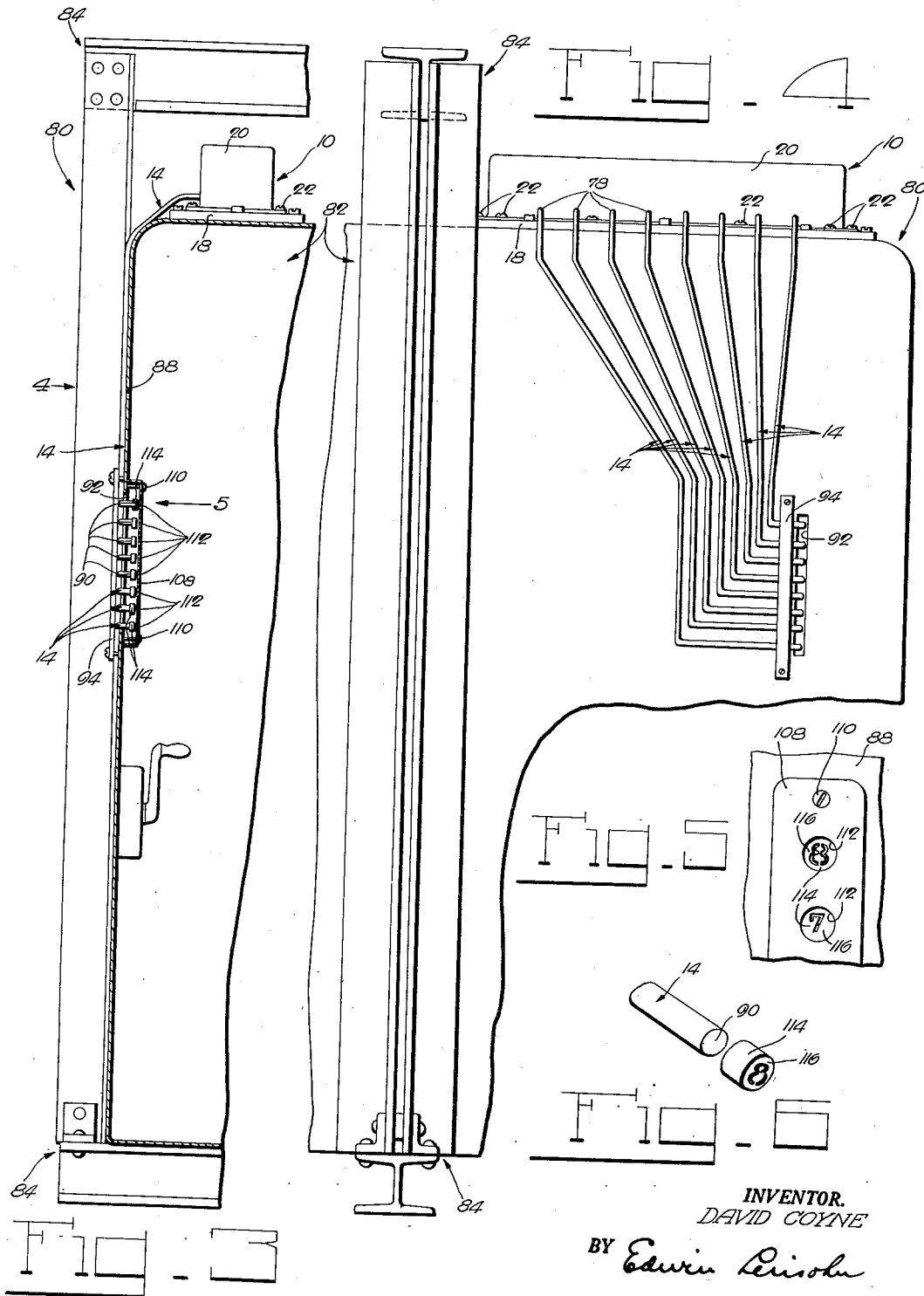
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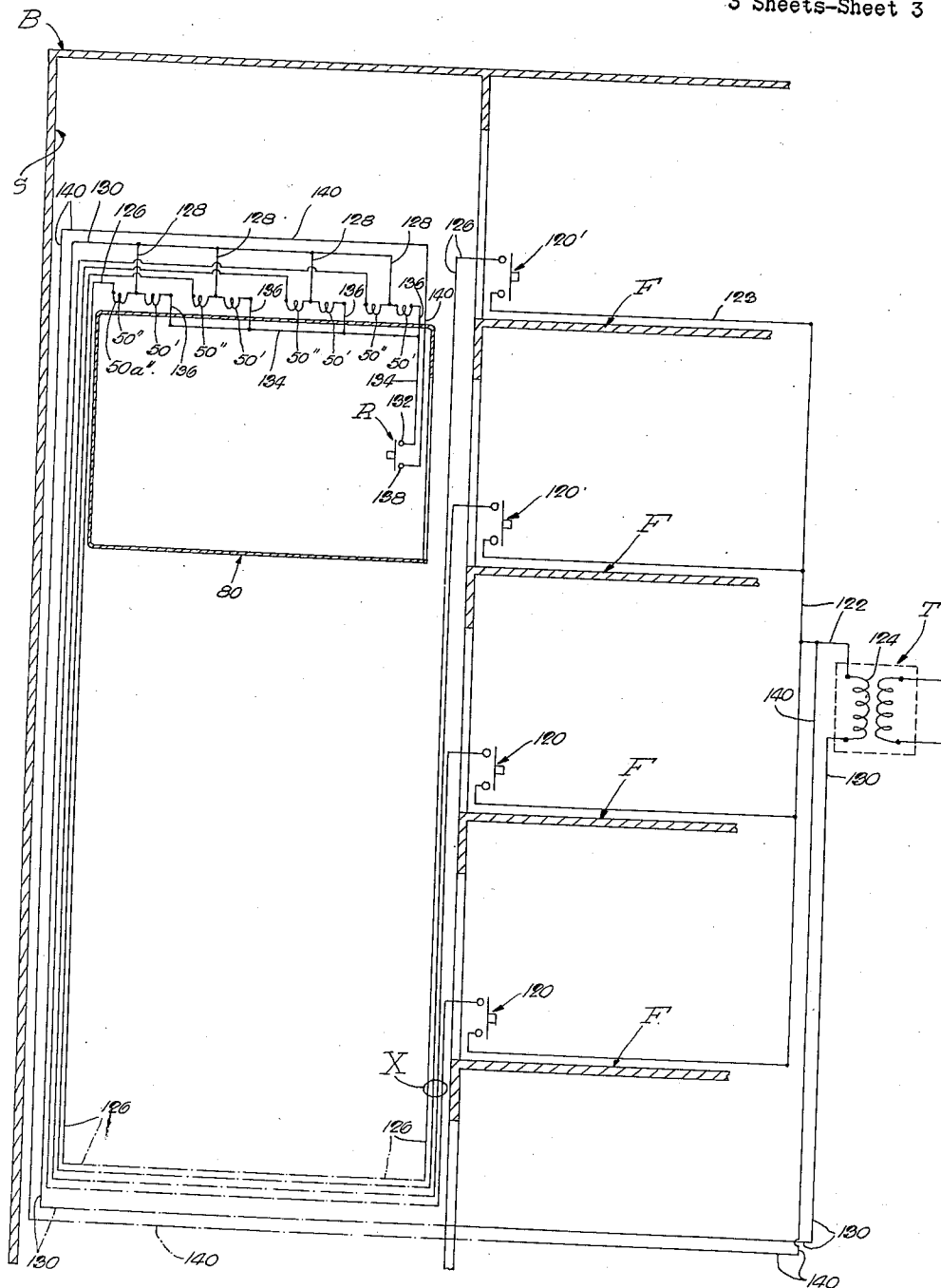
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UNITED STATES PATENT OFFICE

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ANNUNCIATOR FOR ELEVATORS AND
THE LIKE

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2 Claims. (Cl. 177-336)

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This invention relates to annunciators of the type emitting light signals.

It is the primary aim and object of the present invention to provide an annunciator of this type which may be mounted in any hidden or readily accessible place with total disregard to the observation of the light signals therefrom, and to transmit the light signals from the annunciator to any convenient observation post in a simple and unfailling manner by the use of inexpensive equipment which has negligible bulk and is readily applicable to any transit condition.

It is a more specific object of the present invention to provide an annunciator of this type in which the well known light-transmitting property of certain plastics, such as methylmethacrylate, commonly known as Lucite, may be used to good advantage in transmitting the light signals from the annunciator to a remote observation post.

It is another specific object of the present invention to provide an annunciator of this type which may advantageously be applied to an elevator car, by mounting the annunciator on the car at a conveniently accessible place on the outside thereof, and extending plastic signal-transmitting rods from the annunciator along the outside of the car to a window or indicator in the car at a place where the transmitted signals may be most conveniently observed by the operator of the car.

The above and other objects, features and advantages of the present invention will be more fully understood from the following description considered in connection with the accompanying illustrative drawings.

In the drawings:

Fig. 1 is a fragmentary sectional view, partly in elevation, of an annunciator embodying the present invention.

Fig. 2 is a cross section through the annunciator, taken substantially on the line 2-2 of Fig. 1;

Fig. 3 illustrates, by way of example, the application of the instant annunciator to an elevator car, the latter being shown in fragmentary section;

Fig. 4 is a fragmentary side elevation of the elevator car as viewed in the direction of the arrow 4 in Fig. 3;

Fig. 5 is an enlarged front elevation of a part of the annunciator in the elevator car, as viewed in the direction of the arrow 5 in Fig. 3;

Fig. 6 is a fragmentary perspective view of certain associated parts of the annunciator in disassembled relation; and

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Fig. 7 is a wiring diagram of the instant annunciator as applied in an elevator system.

Referring to the drawings, and more particularly to Figs. 1 and 2 thereof, there is shown an annunciator 10, which comprises as its major operating components a light source 12, a number of light-signal transmitters 14, and a like number of electrical devices 16 which selectively admit light from the source 12 to the signal transmitters 14 with which they are associated. These operating components 12, 14 and 16 of the annunciator are carried on a base 18, and are preferably enclosed within a cover 20 which may removably be secured to the base 18 as at 22. The light source 12 may be of any conventional form. In the present instance, the light source 12 is shown as a fluorescent bulb which is removably mounted with its ends in conventional sockets 26 that are, in turn, mounted on suitable brackets 28 on the base 18. Suitably secured to the brackets 28, as by rivets 30, for instance, is a light shield 32 of the generally V-shaped cross-section shown in Fig. 2, which is provided with spaced light passages or openings 36. Except for light that passes through the openings 36, the shield 32 protects the components 14 and 16 therebeneath from direct light from the bulb 12, as will be readily understood.

The electrical devices 16, which may be of the same type as a commercialized target frequently used in annunciators, are in the form of double-acting solenoids of which the movable armatures carry light shields or interceptors 40. Since the electrical devices 16 are identical in every respect, a description of one of these devices, namely the device 16' in Fig. 1, will suffice. This device comprises a mounting 42 which is suitably secured to the base 18, and is preferably molded from any suitable insulating material. The mounting 42 is formed with integral spaced walls 46 that provide receptacles 48 for two solenoid windings 50, respectively. A tubular sleeve 52 extends through the walls 46 of the mounting 42 and serves as a guide for the armature 54, as well as a support for the solenoid windings 50. Extending from the sleeve 52 is a shank 56 that terminates in the light interceptor 40' (see also Fig. 2). The guide sleeve 52 is provided with an elongated slot 60 through which the shank 56 of the armature 54 extends. The shank 56 of the armature 54 is further guided for movement in a certain plane, in the present instance a vertical plane, in an elongated slot 62 in a cover plate 64 on top of the mounting 42. The cover plate 64 may be provided with opposite lugs 66 which

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are bent against the adjacent end walls 46 of the mounting and held in place thereon by crimped-over end tabs 67 of the guide sleeve 52. On energization of the solenoid winding 50', the armature 54 is shifted into the full-line position shown in Fig. 1, in which the interceptor 40' is in the path of the light that emanates from the adjacent passage 36' in the shield 32. On energization of the other solenoid winding 50'', the armature 54 is shifted into the dot-and-dash line position shown in Fig. 1, in which the interceptor 40' is out of the path of the light that emanates from the adjacent passage 36' in the shield 32.

The signal transmitters 14 are, in the present instance, in the form of rods of any suitable plastic material that has the well known property of transmitting light, such as methylnmethacrylate, for instance, which is commonly known as "Lucite." Thus, if one end of either of the plastic rods 14 is exposed to light, the same will be transmitted through the rod and will emanate from the other end thereof. The light-receiving ends 38 of the rods 14 are preferably located in tubular sockets 70 which may be provided by any suitable bracket 72 on the base 13. More particularly, the brackets 72 are so located that the light-receiving ends 38 of the rods 14 in their respective sockets 70 are in alignment with the light passages 36, respectively, in the shield 32. Thus, the end 38 of any one of the rods 14 receives light from the adjacent passage 36 in the shield 32 and the rod transmits the light signal thus received to its other end, when the associated light interceptor 40 is in its inoperative position, which corresponds with the dot-and-dash line position of the interceptor 40' in Fig. 1. Conversely, any rod 14 is effectively shielded from the light emanating from the associated passage 36 in the shield 32 and will not transmit a light signal, when the associated interceptor 40 is in its operative position, which corresponds with the full-line position of the interceptor 40' in Fig. 1. The rods 14 are bent at 76 (Fig. 2) and pass from the annunciator through notches 78 in the cover 20 to any convenient observation post where the light signals transmitted through the rods 14 may readily be observed. Preferably, the rods 14 are secured in sockets 74 in a bar 75 on the base 13 by an overlying bar 77 which may be drawn into clamping engagement with the rods 14 by screws 79 (Fig. 2).

Figs. 3 and 4 show an example of a practical installation of the present annunciator. Thus, the present annunciator may advantageously be installed on an elevator car 80, which may have the usual enclosure or housing 82 carried by conventional framework 84. The annunciator 10 may conveniently be mounted with its base 18 on the outside and on top of the housing 82. The signal-transmitting rods 14, that extend from the annunciator, may be bent in the manner shown in Figs. 3 and 4 so that they extend along the outside of the adjacent wall 88 of the housing 82, and project with their signal ends 90 through an opening 92 in the wall 88, where they may be observed from the interior of the elevator car. The signal-transmitting rods 14 are preferably held against the adjacent side wall 88 of the elevator car by a removable strap 94 so as to hold their signal ends 90 in equally spaced relation in the opening 92 of the car.

For pleasant appearance, the signal ends 90 of the rods 14 project preferably into an em-

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bossed cover 108 (Figs. 3 and 5) which may be bolted at 110 to the wall 88 of the elevator car. The cover 108 may be provided with a plurality of openings 112 through which to view the signal ends 90 of the rods 14 with which they are aligned. In the instant installation of the annunciator in an elevator car, the signal ends 90 of the rods 14 preferably receive caps 114 which may conveniently be pressfitted thereover. For ready indication of the different floors of the building in which the elevator operates, the caps 114 are provided in their bottoms 116 with cut-out stencils denoting numerals such as the numerals "7" and "8" in Fig. 5, for instance. Thus, the signal ends 90 of the rods 14 bear caps 114 denoting the different floors in the building.

It follows from the preceding description that the annunciator may, in the present example, be mounted on the elevator car with total disregard to the observation by the operator of the light signals that emanate from the annunciator. Thus, the annunciator is conveniently mounted on the outside and on top of the elevator car, where the same is readily accessible for repair and the replacement of parts, and is neither observed from, nor takes up space in, the interior of the car. Further, the signal transmitters 14 in the form of plastic rods of small cross-sectional area permit their ready installation and extension to any convenient place in the elevator car where their signal ends may most conveniently be observed by the operator of the car. Thus, by virtue of the readily bendable and cross-sectionally small signal transmitters 14, there are virtually no limitations imposed upon the location of the annunciator and the transmittance of the signals therefrom to any desired observation post.

Fig. 7 shows an example of wiring the annunciator in an elevator system in a building B, having several floors F and an elevator shaft S in which the elevator car 80 may travel. For the sake of simplicity, there are shown only four floors of the building, and accordingly only four of the electrical devices 16 with their solenoid windings 50' and 50''. Provided on each of the several floors of the building is a conventional push button switch 120 which is in circuit with a solenoid winding 50''. The circuits of the solenoid windings 50'' are separate, but identical, circuits, so that a description of one of these circuits will suffice for an understanding of all circuits. Thus, the circuit of the solenoid winding 50a'', which may serve for a signal indication in the elevator car on depressing the switch 120' on the eighth floor, for instance, of the building, comprises a lead 122 from one side of the secondary 124 of a transformer T, a lead 123, the push button switch 120', a lead 126, winding 50a'', a separate lead 128, and a common lead 130, which is connected with the other side of the secondary 124 of the transformer. Thus, on depression of the push button switch 120' by a person on the eighth floor of the building, the described circuit of the solenoid winding 50a'' is closed with the result that the associated signal-transmitting rod 14 of the annunciator receives light from the bulb 12 (Fig. 1) and transmits it to its signal end where it is readily observable from the interior of the elevator car and indicates to the operator of the car that a person or persons on the eighth floor of the building want to get on the car. In accordance with conventional practice, the wires 126, of which there is one for each solenoid winding 50'', and the common wire 130, are joined in a travel-

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ing cable which hangs loosely from the elevator car and extends to a fixed terminal point X, for instance, in the elevator shaft from where the individual wires branch to their respective connecting points in the building. The slack in the traveling cable is, of course, such as to permit the ascent and descent of the elevator car throughout the vertical extent of the elevator shaft.

There is further provided in the elevator car the customary reset switch R in the form of a conventional push-button switch which may be in circuit-connection with each solenoid winding 50'. Thus, one pole 132 of the reset switch R may be connected with one side of each winding 50' through leads 134 and 135, while the other side of each winding 50' may be connected through the separate lead 128 and the common lead 130 with one side of the secondary 124 of the transformer T. The other pole 138 of the reset switch R is connected through a lead 140 with the lead 122 that is connected with the other side of the secondary 124 of the transformer. Part of the common wire 140 may be joined with the other wires 126 and 130 in the previously mentioned travelling cable. Thus, supposing that the solenoid winding 50a'' has been energized for effecting the eighth floor signal in the elevator car in the manner previously described, the operator may cancel this and any other active signal by simply depressing the reset switch R. Closure of the reset switch R results in energization of each solenoid winding 50', as will be readily understood, and according cancellation of any active signal.

While I have shown and described the preferred embodiment of my invention, it will be understood that various changes may be made in the present invention without departing from the underlying idea or principles of the invention within the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:

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1. An operating mechanism for an annunciator for an elevator car having an opening in one of its walls, comprising a unit mounted on the outside of the car and comprising a light source, a plurality of light-transmitting plastic rods, means for holding said rods adjacent the ends thereof nearest said light source so that said rod ends are individually in illuminating relation with said light source, shields for said rod ends, respectively, movable between the latter and said light source to and from block positions, respectively, in which to shield the respective rod ends from said light source, electrical means for each shield adapted, when energized, to move the corresponding shield from its block position, and means for each shield for moving the latter into its block position, said rods extending with their other ends to the opening in the car and being there exposed to view from the interior of the car.

2. An annunciator as set forth in claim 1, in which said unit further comprises caps over said other ends of the rods, said caps having bottoms in the form of stencils of different characters denoting the different floors of a building.

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