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L. J. STEVENS

2,103,123

ANNUNCIATOR

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2 Sheets-Sheet 2

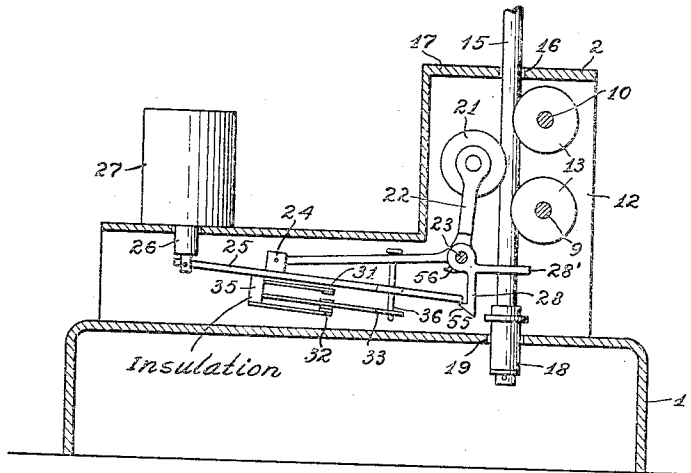


Fig. 2.

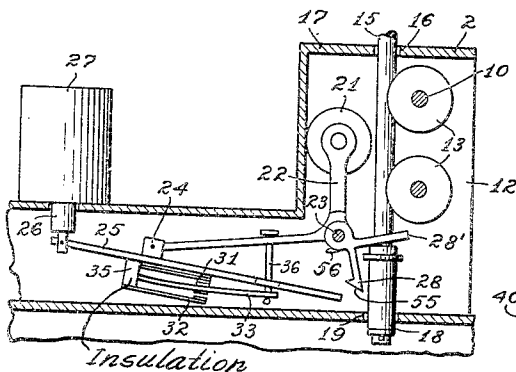


Fig. 3.

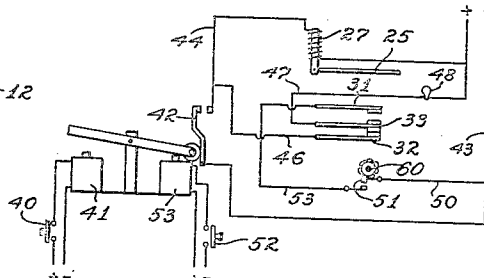


Fig. 5.

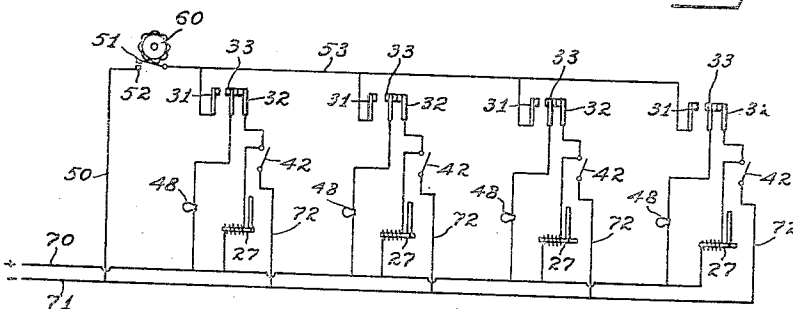


Fig. 6.

INVENTOR.

LEO J. STEVENS

BY *Samuel Johnson*
ATTORNEY

UNITED STATES PATENT OFFICE

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ANNUNCIATOR

Leo J. Stevens, San Francisco, Calif.

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7 Claims. (Cl. 177—336)

This invention relates generally to a single light annunciator connected in circuit with means to intermittently flash one or more lights in said annunciator.

5 An object of my invention is to provide an annunciator connected with an electric signal system and which is adapted to change a path of electric current automatically into the system after an elapsed period of time, thereby flashing
10 a light or other signal in the annunciator off and on.

Another object of my invention is to provide a device connected in circuit with the elevator signal system to indicate by intermittent flashing
15 of a light, every call for an elevator which has not been attended to in a predetermined period of time.

Another object of my invention is to provide in combination with a signal device, a vertically reciprocating rod and means to raise said rod
20 and thereby close an electric circuit to set a flashing light in said signal device in operation.

Other objects and advantages are to provide an annunciator that will be superior in point of
25 simplicity, inexpensiveness of construction, positiveness of operation, and facility and convenience in use and general efficiency.

In this specification and the annexed drawings, the invention is illustrated in the form considered to be the best, but it is to be understood
30 that the invention is not limited to such form, because it may be embodied in other forms; and it is also to be understood that in and by the claims following the description, it is desired to
35 cover the invention in whatsoever form it may be embodied.

My invention is illustrated in two sheets of drawings in which:

Fig. 1 is a transverse section through a device constructed in accordance with my invention, the parts thereof being shown in idle position.

Fig. 2 is the same section as shown in Fig. 1, showing the position of the parts at the beginning of a signaling operation.

45 Fig. 3 is a section similar to Fig. 2, showing the position of parts at the end of the signaling operation.

Fig. 4 is a sectional view along the line 4—4 of Fig. 1, a portion thereof being shown in elevation.

50 Fig. 5 shows an electric circuit of one unit of the signal system.

Fig. 6 shows an electric circuit including four units of the signal system.

Fig. 7 is a side view of the signal interrupter.

55 Signal systems employed in connection with

elevators in modern buildings include push buttons on every floor, connected in circuit with one or more elevators to stop one of said elevators at the floor or floors from which a signal may be given, in conjunction with a "master" signal
5 board which indicates by a light or lights, the fact that one or more floor buttons have been actuated, said "call" lights on the master board being extinguished automatically when the elevator stops at the floor or floors from which the
10 call was made.

A person desiring to stop an elevator pushes the usual button and a light on the "master" signal board immediately indicates the "calling"
15 floor. The light stays illuminated until the elevator stops and picks up the calling passenger. In a case where several signal lights on the board are illuminated at the same time, indicating that there are people on several floors awaiting elevator service, the elevator dispatcher has no
20 means of knowing how long the person or persons have been waiting on the several floors, to be picked up. Satisfactory service is obtained where the average wait does not exceed twenty seconds. With my invention I provide means for
25 causing the lighted floor lights on the "master" signal board to flash at intervals, if the call for an elevator from any floor has not been attended to for more than twenty seconds, thereby attracting the attention of the dispatcher, who may
30 direct any elevator to stop at that particular floor.

My invention may be used in connection with any signal system such as telephone switch boards, hospital signal systems and the like.

35 My light flashing device comprises a frame 1 of suitable dimensions, to which an upper housing 2 is affixed. The latter carries a motor 3 which is connected to a speed reduction mechanism 4 to drive a shaft 4' on which is mounted a gear 5 meshing with gears 6 and 7 on the shafts
40 9 and 10, respectively. The shafts 9 and 10 are rotatably supported in the walls 11 and 12 of the housing 2 and carry a plurality of rollers 13 arranged in pairs, as is illustrated in the drawings, Figs. 1 thru 4. A continuously rotating interrupter 60 is arranged on the shaft 4' to make and
45 break contact between the contacts 51—52 connected in circuit with a signal light 48, to cause said light to flash off and on.

50 The device is comprised of a plurality of identical units, there being one unit for each floor push button, wherefore the description of one unit will suffice.

A vertically disposed rod 15 is arranged op-
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posite each pair of the driving rollers 13, said rod being slidably confined in the frame and housing. The upper end of the rod is guided in an opening 16 in the top 17 of the housing 2, and the lower end of the rod is confined in a bushing 18 which is slidable in an opening 19 in the frame 1. The openings 16 and 19 are of slightly larger diameters than those of the rod and bushing, to allow slight lateral movement of the said rod.

Opposite each pair of rollers 13 and the rod 15, is located an idler roller 21. The center of the roller 21 is approximately midway between the centers of each pair of rollers 13. The roller 21 is journaled on an end of a bell-crank 22, which is fulcrumed at its elbow to a shaft 23. The other end of the bell-crank 22 is pivoted to a post 24, carried by a bar 25. The bar 25 has one end pivotally connected to the plunger 26 of a solenoid 27 carried by the housing 2. The other end of the said bar is supported on a pawl 28, fulcrumed to the shaft 23. When the solenoid 27 is actuated by a push button 40, the plunger 26 is pulled upwardly as shown in Fig. 2, and the bar 25 is swung upwardly, thereby moving the bell-crank 22 with the roller 21 thereon, into frictional contact with the rod 15, and holding said rod in contact with the driving rollers 13, whereby said rod is elevated vertically and simultaneously the signal light 48 is illuminated and it stays illuminated while the rod 15 raises.

The bar 25 carries spaced, insulated contacts 31 and 32 respectively, separated by a switch member 33, one end of which is affixed to the insulating block 35 and the other end to a pin 36 which passes through an enlarged opening 37 in the bar 25. The pin 36 is mounted on an arm of the bell-crank 22. In the idle position the lower contact 32 contacts with the center switch member 33.

The motor 3 drives the rollers 13 constantly, and normally has no driving effect on the rod 15. At the moment a floor signal button 40 (see Fig. 5), located on a certain floor, is pushed, a relay 41, for stopping the elevator at the selected floor, is actuated, and a switch 42 in the elevator control system is closed, thereby establishing two electric circuits.

The first circuit includes a wire 43 connected to a source of energy and to the switch 42, and thence thru a wire 44 to the solenoid 27 which actuates or lifts the bar 25 and roller 21, thereby setting the rod 15 in motion. The wire 44 leading to the solenoid 27 is connected back to the source of energy. The second circuit includes the switch 42, wire 46, the lower contact 32, the switch 33, the wire 47 and the floor light 48 located on the master signal board, said light 48 being connected in circuit with the return wire 44. When the light burns continuously, it indicates that a passenger is waiting on the certain floor from which the signal originated. It takes approximately twenty seconds for the rod 15 to be raised by the driving rollers from its idle position to its uppermost position. As the rod 15 reaches the peak of its movement, the bushing 18 strikes the arm 28' on pawl 28 and disengages the pawl from the bar 25, as shown in Fig. 3. The rod 15 then drops to its idle position and likewise the bar 25 then drops to an idle position and the switch 33 engages the upper contact 31 thereby closing a circuit thru the wire 43, the wire 50, and an interrupter contact 51

located adjacent a rotary interrupter 60 driven in timed relation by the shaft 4'. A wire 53 leads from a contact 52 adjacent the interrupter contact 51 to the upper contact 31, the switch 33, the wire 47, and the floor signal light 48 on the "master" board. As the current passes through the interrupter contacts 51-52, the continuously illuminated light commences to flash off and on, thereby calling the attention of the dispatcher to the fact that a floor call has not been attended to by an elevator for longer than twenty seconds. The dispatcher then routes an elevator immediately to the floor to pick up the waiting passenger.

When the elevator stops to pick up a passenger it operates a switch 52, and thereby energizes a relay 53, and cuts out the relay 41 and the switch 42. The plunger 26 then drops by gravity and returns the bar 25 in counter-clockwise direction about the axis of the post 24. The right end of the bar 25 then strikes the inclined portion 55 of the pawl 28, and snaps into engagement therewith. The device is again ready for operation.

A stop 56 is formed on the pawl 28 to abut against the bell-crank 22 to hold the pawl 28 in position to be engaged by an end of the bar 25.

In Fig. 4 of the drawings, I have shown four units, each unit being electrically connected with a push button on one of four floors. The pressing of a floor button operates a certain unit representing that floor, and a lamp representing that floor, will light on the master signal board.

Fig. 6 shows a wiring diagram of four units. Wires 70 and 71 are connected with a source of electric current. Wires 72 lead from the wire 71 to the switches 42. When a push button on a certain floor is pressed, the switch 42 connected with that particular button is closed and two electric circuits are established, one operates the relay 27 and the other the light 48 on the signal board. If the call of the push button is not served by the elevator in twenty seconds, the switch 33 connected to the light 48 has its position changed by the moving rod 15, and connects the light 48 with the interrupter 51 thereby changing the steadily glowing light into a flashing one. The dispatcher answers the alarm of the flashing light in the manner hereinbefore described, and the elevator, after it has picked up the waiting passenger, restores the signaling system to its normal, idle position.

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

1. In combination with an elevator signal system including a push button and a signal light electrically connected therewith to be illuminated whenever the button is actuated, of a constant running motor, an interrupter attached thereto, rollers driven by the motor, a rod to be elevated by said rollers, an idler roller swingingly supported adjacent said rod, an electromagnet electrically connected with the push button to swing said idler roller into contact with the rod and to move the rod into engagement with the driving rollers to elevate the rod through a selected path of travel, and means associated with said rod for simultaneously disconnecting the idler roller from contact therewith when the rod reaches a selected point in its travel and to allow the rod to drop, and for placing the interrupter in circuit with the light, to cause said light to flash at intervals.

2. An elevator signaling system including a

master panel having a collection of lights thereon, each light indicating a predetermined floor, and a push button on each floor in circuit with a predetermined floor light on the master panel in combination with an electromagnet in circuit with said push button, a driving member, a shaft to be elevated by said driving member, a roller actuated by the electromagnet to engage said shaft with the driving member, and means operated in timed relation with the driving member to intermittently interrupt the flow of current to a light on the master panel corresponding to a certain floor on which the button has been pressed, said last mentioned means being rendered operative by movement of the shaft.

3. In a signal system comprising an electric signal and separate circuits capable of being selectively connected with said signal for producing different signal effects, means for controlling said circuits comprising a pivoted arm, a second pivoted arm having a pivotal connection with the first named arm, switch means controlling the selection of said circuits carried by one arm, a link between the other arm and the switch means whereby the switch means will be actuated upon movement of the arms about their respective pivots, and means for controlling the movement of said arms.

4. In an elevator signal system comprising a movable member and means including an electromagnet for controlling movement thereof, a circuit including said electromagnet, a second circuit, an interrupter in said second circuit, a signal light, means comprising a normally closed switch for including the light in the first named circuit and also comprising a normally open switch for placing the light in said second circuit, and means engageable by said movable member to open the normally closed switch, close the normally open switch, and return the movable member to its starting position.

5. In an elevator signal system comprising a

movable member and means including an electromagnet for controlling movement thereof, a circuit including said electromagnet, a second circuit, an interrupter in said second circuit, a signal light, means comprising a normally closed switch for including the light in the first named circuit and also comprising a normally open switch for placing the light in said second circuit, means engageable by said movable member to open the normally closed switch, close the normally open switch, and return the movable member to its starting position, and means effective upon the stopping of an elevator in response to the signal light for returning the switches to their normal positions.

6. In an elevator signal system comprising a movable member and means including an electromagnet for controlling movement thereof, a circuit including said electromagnet, a second circuit, an interrupter in said second circuit, a signal light, means comprising a normally closed switch for including the light in the first named circuit and also comprising a normally open switch for placing the light in said second circuit, and means actuated by said movable member to open the normally closed switch, close the normally open switch and return the movable member to its starting position.

7. In an elevator signal system comprising a movable member and means including an electromagnet for controlling movement thereof, a circuit including said electromagnet, a second circuit, an interrupter in said second circuit, an electric signal, means comprising a normally closed switch for including the signal in the first named circuit and also comprising a normally open switch for placing the signal in said second circuit, and means engageable by said movable member to open the normally closed switch, close the normally open switch and return the movable member to its starting position.

LEO J. STEVENS.