No. 748,408. PATENTED DEC. 29, 1903.

J. McLEAN.

ELEVATOR SIGNALING APPARATUS.

APPLICATION FILED NOV. 16, 1901.

NO MODEL. 2 SHEETS—SHEET 1.

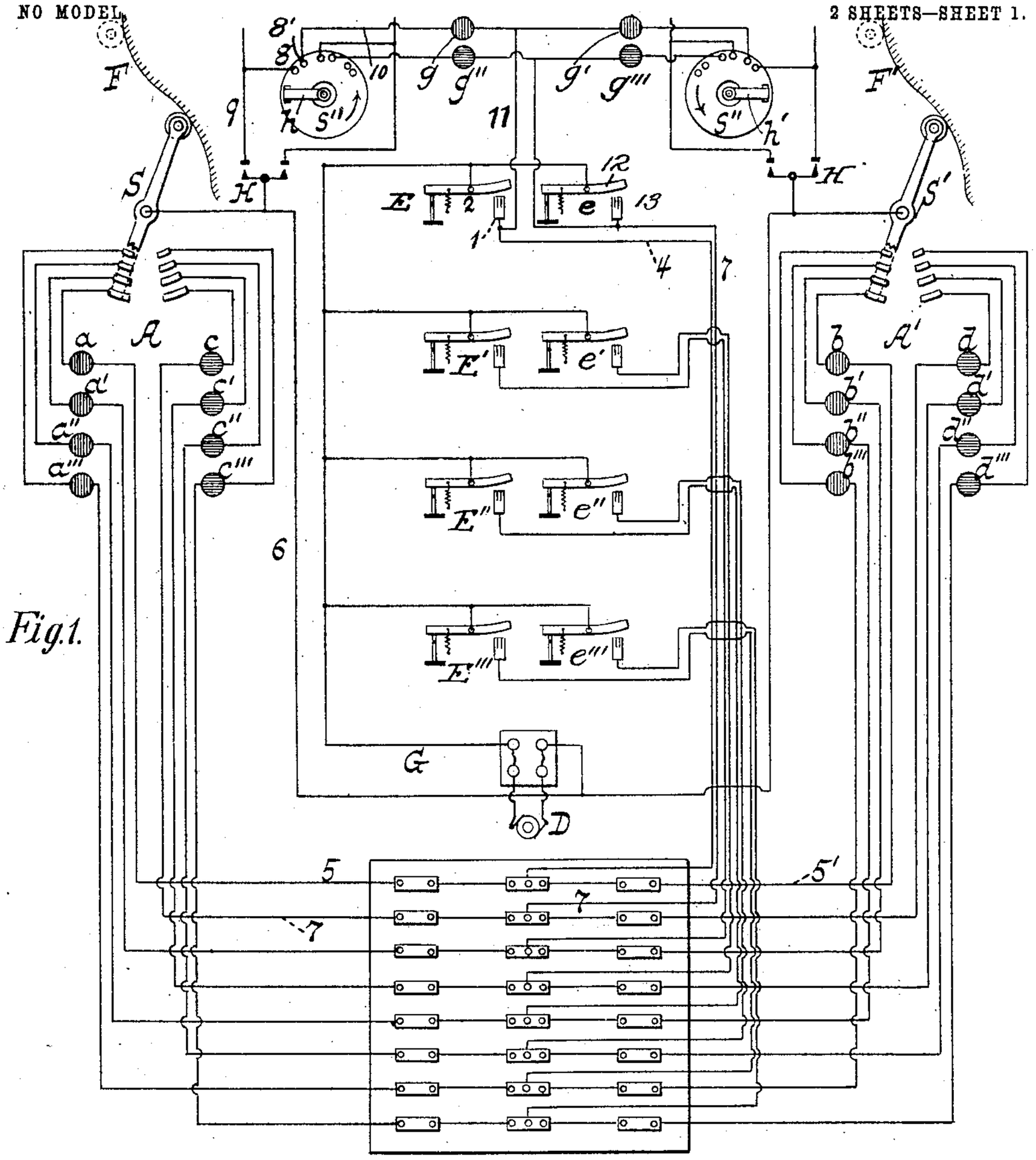

Fig. 1.

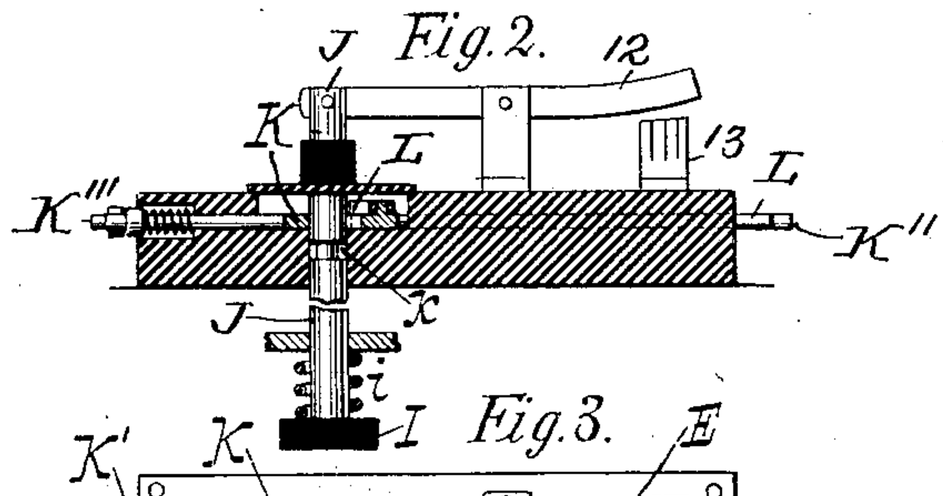

Fig. 2.

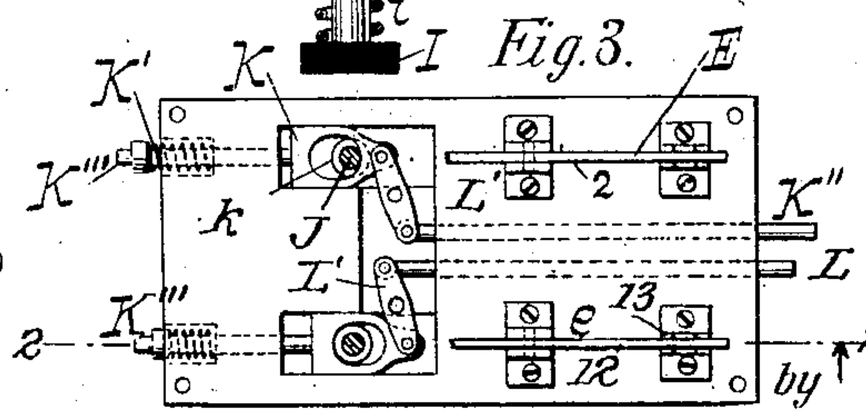

Fig. 3.

Witnesses:
Chas. Wahlers
M. Blumer.

Inventor
John McLean
by Philip K. Slum Atty

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NO MODEL. 2 SHEETS—SHEET 2.

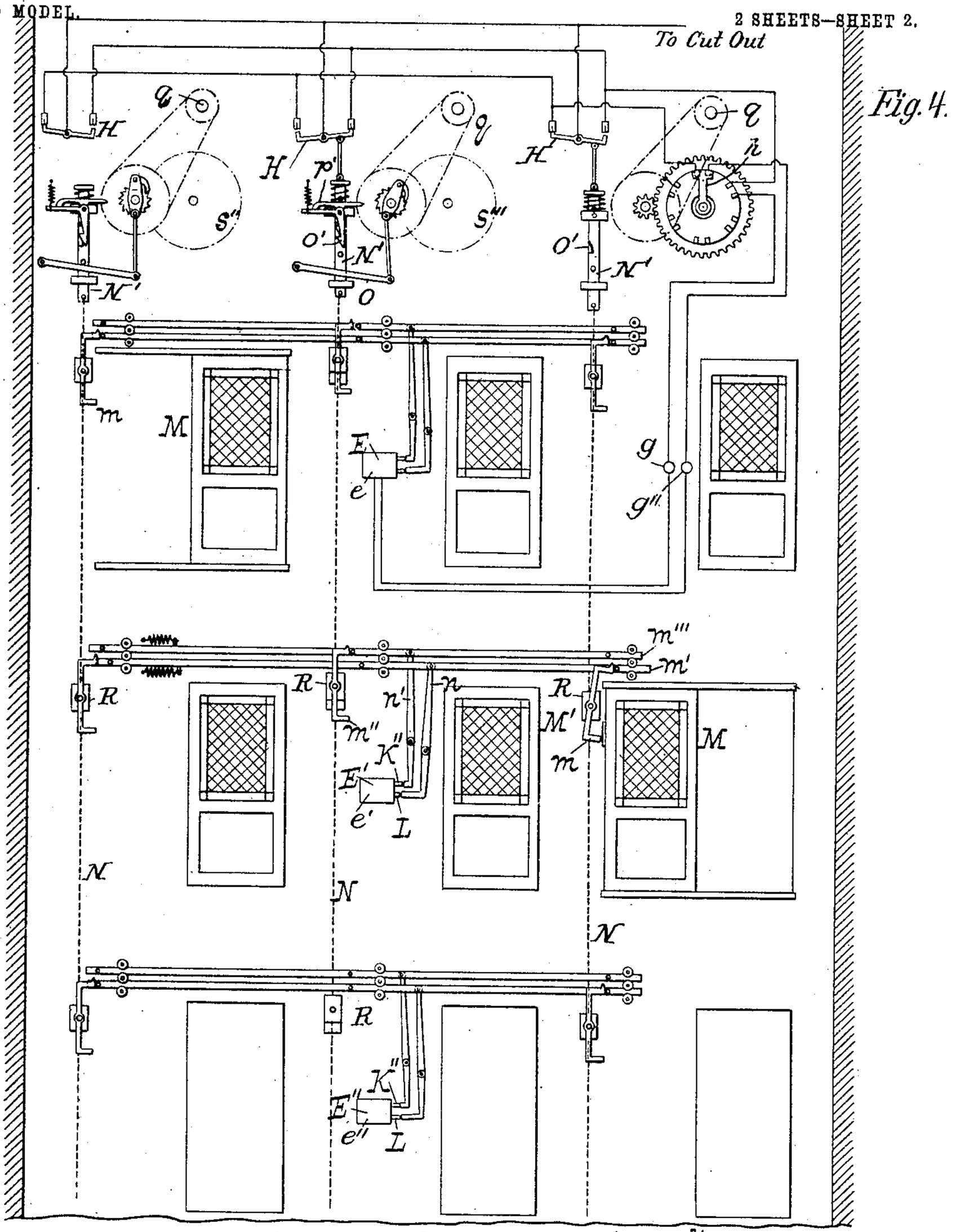

Fig. 4.

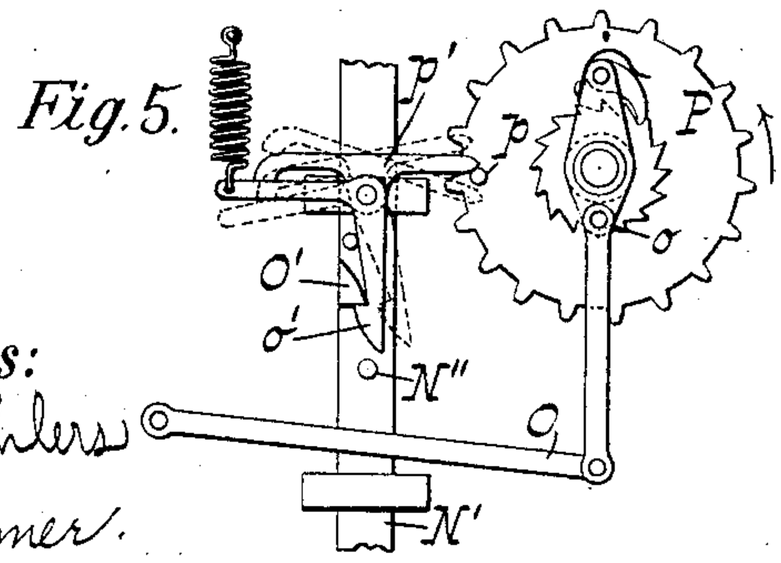

Fig. 5.

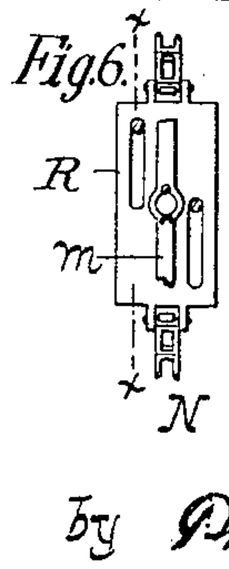

Fig. 6.

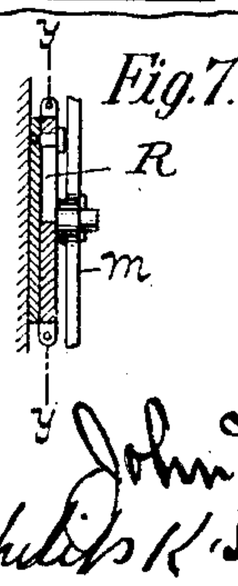

Fig. 7.

Witnesses:
Chas. Wahlers
M. Blumer.

Inventor
John McLean
By Philips & Slem Attys

No. 748,408. Patented December 29, 1903.

UNITED STATES PATENT OFFICE.

JOHN McLEAN, OF NEW YORK, N. Y.

ELEVATOR SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 748,408, dated December 29, 1903.

Application filed November 16, 1901. Serial No. 82,511. (No model.)

To all whom it may concern:

Be it known that I, JOHN McLEAN, a citizen of the United States, residing at New York city, in the county and State of New York, have invented certain new and useful Improvements in Elevator Signaling Apparatus, of which the following is a specification.

My invention relates to elevator signaling apparatus employed to enable a signal to be sent from a fixed point to a car or elevator or to indicate at a fixed point the location and direction of movement of an elevator or car or to combine both of these indications.

My invention has for its objects to confine the indications visible or otherwise apparent to the attendant of the car to directional signals corresponding to the direction of movement of the car and to control the restoration of the indicating devices to non-indicating condition in a more simple and effective manner than hitherto and to provide instrumentalities whereby the apparatus may be made more durable and the connections for electrical features less cumbersome and more positive and to provide a considerable amount of mechanical devices and a smaller number of electrical points and contacts than hitherto.

My invention has for its objects generally to improve and simplify the construction of such apparatus.

I will now describe the construction of elevator signaling apparatus embodying my invention, illustrated in the accompanying drawings, and will thereafter point out my invention in claims.

Figure 1 is a diagrammatic view of the different electrical circuits and devices representing the system connected up for two elevator-cars. Fig. 2 is a horizontal section taken on the line 2 2, Fig. 3, of the stationary signaling device or switches for one floor. Fig. 3 is a rear elevation of the same, partly in section. Fig. 4 is a vertical longitudinal section of an elevator-shaft for three cars provided with signaling means embodying my invention with the elevator-cars omitted, showing more particularly the mechanical features of my system. Fig. 5 is a detail view of the shifting mechanism employed to operate a vertical line of releasing-levers. Fig. 6 is a sectional detail taken on the line Y Y of Fig. 7 of a sliding block which carries a releasing-lever. Fig. 7 is a section of the same, taken on the line X X of Fig. 6.

In the diagrammatic view Fig. 1, A and A′ are electrical annunciators, each of which would be located in one of the two elevator-cars for which the circuits shown in this view provide. These annunciators are chiefly composed of lamps which may be incandescent electric lamps *a a′ a″ a‴*, *b b′ b″* and *b‴*, *c c′ c″ c‴*, *d d′ d″ d‴*. Switch-levers S and S′ and the contact-points with which they engage, as shown, are provided, one for each car, and also wires leading from the aforesaid lamps and bunched in the form of cables, so that they move freely up and down in the elevator-shaft as the cars rise and fall. The annunciators, switch-levers, and conductors or cables comprise that part of the signaling system which is carried by the cars, the cars not being shown. The switch-levers S and S′, together with the contact-points which they engage, I shall term "directional" switches, since the function of each switch is to limit the transmission of signals to up-signals when the corresponding car is moving upward, and down-signals when the corresponding car is moving downward, thus limiting the signals transmitted to those corresponding to the direction of movement of the car. The annunciator to the left is that for one car, while that to the right is for another and independent car. For the aforesaid incandescent lamps referred to I prefer to employ a miniature type having a low candle-power and of different colors. I distinguish these colors in the drawings by the difference in shading, as shown, those to the left in each annunciator being shaded with vertical lines representing the same color, which may be red, while those to the right are shaded with horizontal lines, which represent another color, which may be blue. Each elevator-car has one red lamp for each point at which the car is to stop in its upward movement and one blue lamp for each point at which the car is to stop in its downward movement, and an up-signaling switch and a down-signaling switch are provided at each stopping-point. The switches E E′ E″ E‴ are for the up-signals and the switches *e e′ e″ e‴* are for the down-signals.

For the purpose of actuating the directional switch-levers S and S′, I provide means for shifting these switch-levers at the completion of the movement of the cars in either direction, such means being shown as comprising cams F and F′, one at the top of each elevator-shaft, and cams *f* and *f′*, one at the bottom of each elevator-shaft. The lower cam *f* is shaped and arranged so as to throw the switch-lever S into the position shown in Fig. 1, with its upper end to the right when the elevator-car reaches the downward limit of its movement, and the upper cam F is shaped and arranged so as to throw the switch-lever S into the opposite position, with its upper end to the left when the car reaches the upward limit of its movement, and, as shown in Fig. 1, the car is assumed to be approaching this latter position and the switch-lever S has come into contact with the cam F and is about to be actuated. The cams *f′* and F′ similarly actuate the switch-lever S′. These switch-levers S and S′ move on their pivots with considerable friction, so that when thrown into any position they will remain in such position until positively moved therefrom irrespective of jar or concussion. It is obvious that should a car carrying the annunciator A or A′ rise to its highest altitude the switch-lever S or S′ will be thrown by the upper cam F or F′ so that the down-signaling lamps *c c′ c″ c‴* or *d d′ d″ d‴* will be grouped by the switch-lever S or S′ contacting with the contact-plates on the right and that the same condition will prevail for any number of annunciators similarly disposed. On the other hand, should a car reach the lowest point in its descent the lower cam *f* or *f′* will throw the switch-lever S or S′ into a position which will disengage its contacting extremity from the contact-points which correspond to the down series of lamps and will thus group the up-signaling lamps *a a′ a″ a‴* or *b b′ b″ b‴*, the switch-lever S or S′ remaining in the position to which it has been thrown by the upper or lower cam until it has been reversed by the other cam, and thus the controlling or directional switch for each car will be adjusted by a single act of adjustment for each change of direction of the car and by such adjustment will effect the directional control of the indicating means—*i. e.*, will limit the signal indications to those corresponding to the direction of movement of the car. When it is desired to send an up-signal from the fixed point at which the switches E and *e* are located to the annunciators A or A′ of the cars, the up-switch E is closed. If the elevator-car containing the annunciator A is ascending, the switch-lever S will have been thrown into position while at the lowest point of its descent, so as to group the up-signaling lamps *a a′ a″ a‴*, and an electrical current from the source D will pass by the conductor G to the pivot-arm 2 of the up-switch E and through the switch-clip 1 to the conductor 4, thence by conductor 5 to lamp *a* and through the corresponding contact-point and switch-lever S and return-wire 6 back to the other terminal of the source of energy D, thus completing the electrical circuit and illuminating the lamp *a*, thereby indicating to the elevator conductor that a person at the point at which the switch E is located wants an ascending elevator to stop for him at that floor. It will be seen by tracing the circuit in a similar manner to the annunciator A′ of the other elevator-car or the one to the right that the same signal will also be sent to that car if that car is ascending, and so on for any number of cars that may be ascending. On the other hand, should the elevator-car be descending after it has reached its highest point the switch-lever S having been thrown in the opposite direction by the cam F, so as to group the lamps in a manner which will give a reverse or descending signal, the pressing of the button of the down-switch *e* will establish electrical communication between the descending signal-lamp *c* and source of energy D and the current will flow from the source of electric energy D through the conductor G, pivot-arm 12 of the switch *e*, switch-clip 13 and conductor 7 to lamp *c*, and through the corresponding contact-point and switch-lever S and return-wire 6 back to the source of electric energy. Thus the lamp *c* will be illuminated, indicating to the car conductor the location of the sender and the direction in which he desired to travel. It will be seen by tracing the circuit in a similar manner to the annunciator A′ of the other elevator-car that the same signal will also be sent to that car if that car is descending, and so on for any number of cars that may be descending. The means for restoring the signaling devices or lamps to non-indicating or normal condition are actuated by the opening of the gates or doors or other movable contrivances, hereinafter referred to as "gates" for admitting a passenger to the elevator-car, as will be hereinafter explained.

In order to indicate to a person who has signaled for an elevator-car that a car is approaching in the desired direction and to indicate which one of the several cars is thus approaching, I have arranged two stationary indicating devices, shown as lamps, for each elevator for each floor, one of such lamps indicating that the car is approaching in an upward direction and the other that the car is approaching in a downward direction. These lamps are known as "outside" lamps or signals, being visible to a person on the floor of the building outside of the elevator-shaft. I have shown in Fig. 1 the up-signal outside lamp *g* and the down-signal outside lamp *g″* at the upper floor shown and for the elevator-car having the annunciator A and the up-signal outside lamp *g′* and the down-signal outside lamp *g‴* at the upper floor shown for the elevator-car having the annunciator A′. I control these lamps by means of rotating

switches S'' and S''', shown as located at the top of the elevator-shaft. The arms *h* and *h'* of these switches are adapted to make a bridging contact between two adjacent switch-points, as 8 and 8', being rotated by a drive-gear which is connected to a sheave *q* of the elevator-operating mechanism, as shown in Fig. 4. The arms *h h'* are geared down, so as to make one revolution for a trip of the elevator-car, and the spacing of the contact-points is such as to correspond with the order of the floors at which the car is desired to stop. The function of these switches is to effect a bridging contact between two adjacent switch-points, as 8 8', so as to close the circuit leading to one or the other of the stationary lamps, as *g* or *g''*, according to which one of the said lamps is in or out of the circuit. When a car of the elevator system—for example, that to the left carrying the annunciator A—is ascending, the radial switch-arm *h* will be rotated clockwise by the aforesaid transmission-gear in the elevator-shaft, and when it arrives at a point in the path of its revolution where it will bridge the contacts 8 and 8' and the shaft directional switch H, shown as located at the top of the elevator-shaft, is closed by the upward movement of the elevator, as will be explained hereinafter, and the up-switch E is closed a current will flow from the source of energy D through the conductors 6 and 9, contacts 8 and 8', conductor 10, lamp *g*, conductor 11, clip 1, switch-lever 2, and return-wire G, and the lighting of the up-signal outside lamp *g* at the floor from which the signal was sent will announce to the person who actuated the switch E and sent the signal that the car containing the annunciator A is ascending and approaching the floor at which the switch E is located. In the drawings I have shown but a single pair of outside signal-lamps, one for each car, although at each of the other floors at which the cars are designed to stop one pair of these outside lamps for each elevator-car will be provided. The contact-points, as 8 8', of the rotating switch S'' are spaced at intervals in a circle described by the arm *h*, so as to correspond to the intervals between the floors at which the car is to make its stops, but lead the car by one floor. For example, assuming the car having the annunciator A to be ascending and starting up from the first floor then the up-signal outside lamp situated at the next floor up will be illuminated.

The two switches at each floor, as E and *e*, are preferably grouped and arranged on one support, as shown in Figs. 2 and 3, and are preferably of the ordinary knife-switching pattern, each being operated by a push-piece I and pin J. These switches are constructed so as to automatically retain their set positions until released by positive actuation, each being provided with a catch K, which engages the groove or recess *k* in the push-pin J. The catch K, having a thrust-spring K', will be thrust into the recess *k* in the push-pin J when the latter has been thrust by the button I into position to close the switch. A thrust-spring *i*, tending to force the button I in the opposite direction to that in which it has been actuated, will when the catch K is disengaged from the recess *k* force the connecting-rod and switch back into its original position, with the effect that the switch will be opened. Both switches E and *e* are identical with respect to the parts already described and are similarly lettered. I shall, however, refer to the releasing-rod of the switch E as the rod K'' and the releasing-rod of the switch *e* as the rod L, and in Fig. 4 the upper releasing-rod K'' is that of the switch E, while the lower releasing-rod L is that of the switch *e*, each releasing-rod being connected to its catch K by a pivoted connecting-lever L'. This type of switch affords a ready means for releasing the same by the elevator-door striking against the releasing-rod, as K'', or against the catch-rod K''' after the switch has been closed by pushing its button I, as aforesaid. The manner by which the gates of the elevator-shafts operate these switches so as to release them after they have been closed is illustrated in Fig. 4, and the release of the switches is shown as effected by contact with the releasing-rods. Each of the gates M when opened so as to permit a passenger to enter a car will strike against a releasing-lever *m*, moving it into rearward position, as shown at the middle-floor right-hand door, Fig. 4. The effect of the gate M striking the releasing-lever *m* is to move a tappet-bar *m'* to the right. The tappet-bar *m'* having a pivotal connection with a striking-lever *n* will press against the releasing-rod L, permitting the down-switch *e'* to be automatically opened, thereby extinguishing the corresponding down-signal lamps *c' d'*, &c., in all of the annunciators of the elevator-cars and also extinguishing the corresponding down-signal outside lamp and preventing the illumination of the other down-signal outside lamps of the floor by other elevator-cars until the down-switch *e'* is again operated. Should the gate M', the next gate to the left of the gate above referred to, be opened to admit a passsenger, so as to strike the releasing-lever *m''*, the tappet-bar *m'''* will be thrust to the right, and the striking-lever *n'* will press against the releasing-rod K'', releasing the up-switch E', extinguishing the corresponding up-signal lights *a' b'*, &c., of all the cars and extinguishing the corresponding up-signal outside lamp and preventing the illumination of the other up-signal outside lamps of the floor until the up-switch E' is again operated. The releasing-levers *m m''* are brought into a position so as to contact with the tappet-bar *m'* or *m'''* by the direction of travel of the elevator-car, which is in the vertical line of these releasing-levers, and I pivot these releasing-levers *m m''* upon sliding blocks R, (one of which is shown in Figs. 6

and 7,) operated and connected with each other by a chain N. The chain N is secured to a catch-bar N′, which is raised by a pin N″ and pivoted lever O, driven by a crank *o* and pawl and ratchet-wheel, as shown clearly in Fig. 5. This lifting mechanism is shown in Fig. 4 disposed at the top of the elevator-shaft and is connected up to the elevator transmission system by means of a sprocket-chain and sprocket-wheel gear driven by a sheave *q*, so that when an elevator-car is ascending a sprocket-wheel P will be rotating counter-clockwise, or in the direction shown by the arrow in Fig. 5. This will drive the crank *o* around, so as to give an oscillating movement to the lever O, which will contact with the pin N″ of the catch-bar N′ and at the termination of the upstroke of the lever O will have lifted the catch-bar N′ by the pin N″ until the catches O′ and *o′* have engaged, after which the lever O will be free to oscillate upon its pivot without lifting the catch-bar N′. The lifting of the catch-bar N′ by the lever O will have the effect of moving all of the releasing-levers *m″*, supported by the chain N, so as to aline with the upper tappet-bar *m‴* or place them in a position whereby the opening of the gates will release the up-switches E E′ E″. When the elevator-car is descending, the pawl and ratchet-wheel will not drive the crank *o*; but the latter will remain in lower position, and the sprocket-wheel P, carrying the pin or stud *p*, will engage the underneath side of the jointed catch-lever *p′*, which will move the catch *o′* into the position shown in the dotted lines and disengage it from the catch O′ of the catch-bar N′, allowing the latter, together with the chain N and releasing-levers *m″*, to fall by gravity until the pin N″ contacts with and rests upon the pivoted lever O. This downward movement of the releasing-levers effected by a descending movement of the elevator-car will bring the releasing-levers *m″* into a position whereby they will contact with the lower tappet-bar *m′*.

From the above description of the releasing-levers *m m″* and their directional operating means and the tappet-bars *m′ m*³ and the striking-levers *n n′* it will be evident that these devices constitute directional restoring means, each releasing-lever being controlled by the direction of movement of its car and operating, when actuated by the elevator-gate through one or the other of the tappet-bars, to release or restore either the up or the down signaling device or switch of the corresponding floor, and thereby to restore the corresponding indicating means to non-indicating condition or position.

The shaft directional switch H, above referred to, is an ordinary single-blade double-throw knife-switch and is connected to the catch-bar N′, as shown in Fig. 4, and is actuated by such catch-bar to close one or the other of its contacts, depending upon the direction of movement of the corresponding elevator-car. With an ascending movement the contact to the right is closed, and with a descending movement the contact to the left is closed. The opening of the contact to the left holds open all of the circuits for the down-signal outside lamps for the corresponding elevator-car, and the opening of the contact to the right holds open all of the circuits for the up-signal outside lamps for the corresponding elevator-car, as has appeared from the preceding description of the circuits of these outside lamps.

It is evident that various modifications may be made in the construction shown and above particularly described within the spirit and scope of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. An elevator signaling apparatus comprising a plurality of indicators carried by an elevator-car and corresponding to floors of the building, directional signaling devices located at floors of the building, continuous conductors between the signaling devices and corresponding indicators, and a switch controlled by the movement of the car to limit the signal indications to those corresponding to the direction of movement of the car.

2. An elevator signaling apparatus comprising a signal-indicator for an elevator-car, a signaling device located at a floor of the building and connected to such indicator, a gate at such floor for admission to the car, and restoring means automatically controlled in its restoring operation by the opening movement of the gate and controlling such indicator.

3. An elevator signaling apparatus comprising a signal-indicator for an elevator-car, another signal-indicator located at a floor of the building, a signaling device located at said floor and connected to such indicators, a gate at such floor for admission to the car, and means for restoring the indicators to non-indicating condition, such restoring means being automatically controlled by the movement of such gate.

4. An elevator signaling apparatus comprising a signal-indicator for an elevator-car, a directional signaling device located at a floor of the building and connected to the indicator, a switch controlled by the movement of the car to limit the signal indications to those corresponding to the direction of movement of the car, a gate at such floor for admission to the car, and restoring means automatically controlled by the movement of the gate and controlling such indicator.

5. An elevator signaling apparatus comprising a signal-indicator for an elevator-car, another signal-indicator located at a floor of the building, a directional signaling device located at said floor and connected to the indicators, a switch controlled by the movement of the car to limit the signal indications to those corresponding to the direction of movement of the car, a gate at such floor for

admission to the car, and restoring means automatically controlled by the movement of the gate and controlling such indicators.

6. An elevator signaling apparatus comprising an annunciator carried by an elevator-car and having a plurality of indicators corresponding to floors of the building, signaling devices located at the different floors and connected to the corresponding indicators, gates at the different floors for admission to the car, and restoring means for the indicators corresponding to each floor, such restoring means being automatically controlled in its restoring operation by the opening movement of the gate of the corresponding floor.

7. An elevator signaling apparatus comprising an annunciator carried by an elevator-car and having a plurality of indicators corresponding to floors of the building, directional signaling devices located at the different floors and connected to the corresponding indicators in the annunciator, a switch controlled by the movement of the car to limit the signal indications to those corresponding to the direction of movement of the car, gates at the different floors for admission to the car, and restoring means for the indicators corresponding to each floor, such restoring means being controlled by the movement of the gate of the corresponding floor.

8. An elevator signaling apparatus comprising an annunciator carried by an elevator-car and having a plurality of indicators corresponding to floors of the building, other indicators located at such floors, signaling devices located at such floors and connected to the corresponding indicators, gates at the different floors for admission to the car, and restoring means for the indicators at and corresponding to each floor, such restoring means being controlled by the movement of the gate of the corresponding floor.

9. An elevator signaling apparatus comprising an annunciator carried by an elevator-car and having a plurality of indicators corresponding to floors of the building, other indicators located at said floors, directional signaling devices located at said floors and connected to the indicators, a switch controlled by the movement of the car to limit the signal indications to those corresponding to the direction of movement of the car, gates at the different floors for admission to the car, and restoring means for the indicators at and corresponding to each floor, such restoring means being controlled by the movement of the gate of the corresponding floor.

10. An elevator signaling apparatus comprising a plurality of annunciators carried by a plurality of elevator-cars, each annunciator having a plurality of indicators corresponding to floors of the building; directional signaling devices located at floors of the building, continuous conductors connecting the signaling devices and the corresponding indicators in the several cars, and a switch for each car controlled by the movement of the car to limit the signal indications in such car to those corresponding to the direction of movement of the car.

11. An elevator signaling apparatus comprising a plurality of indicators for a plurality of elevator-cars, a signaling device located at a floor of the building and connected to the indicators in the several cars, gates at such floor for admission to the several elevator-cars, and restoring means automatically controlled by the movement of such gates and controlling the indicators.

12. An elevator signaling apparatus comprising a plurality of indicators for a plurality of elevator-cars, directional signaling devices located at floors of the building and connected to the indicators in the several cars, means individual to each car and controlled by the movement of the corresponding car to limit the signal indications in the individual cars to those corresponding to the direction of movement of the car, gates at the different floors for admission to the different cars, and restoring means individual to each floor controlled by the movement of the gates of such floor and controlling the corresponding indicators.

13. An elevator signaling apparatus comprising a plurality of indicators carried by a plurality of elevator-cars, stationary indicators for the several cars located at floors of the building, directional signaling devices located at said floors and connected to the indicators in the several cars, means individual to each car and controlled by the movement of the corresponding car to limit the signal indications in the individual cars and of the stationary indicators for the individual cars to those corresponding to the direction of movement of the car, gates at the different floors for admission to the different cars, and restoring means individual to each floor, controlled by the movement of the gates of such floor, and controlling the corresponding indicators.

14. An elevator signaling apparatus comprising a signal-indicator, a signaling device located at a floor of the building and connected to the indicator, retaining means for the signaling device to retain the same in set condition, a gate at such floor for admission to the car, and restoring means automatically controlled by the movement of the gate and controlling the retaining means.

15. An elevator signaling apparatus comprising a signal-indicator, a directional signaling device located at a floor of the building and connected to the indicator, retaining means for the signaling device to retain the same in set condition, a gate at such floor for admission to the car, and directional restoring means controlling the retaining means and automatically controlled by the movement of the car and by the movement of the gate.

16. An elevator signaling apparatus com-

prising a plurality of signal-indicators for a plurality of elevator-cars, directional signaling devices located at floors of the building and connected to the indicators, retaining means for the signaling devices to retain the same in set condition, gates at the different floors for admission to the different cars, and directional restoring means individual to each car, controlling the retaining means and controlled by the movement of the corresponding car and by the movement of a gate of the corresponding floor.

17. An elevator signaling apparatus comprising an electrically-controlled signal-indicator for an elevator-car, a signaling device located at a floor of the building and electrically connected to the indicator and comprising a switch and a latch for retaining the switch in set position, a gate at such floor for admission to the car, and means automatically controlled by the movement of such gate and controlling such latch to restore the switch from set condition.

18. An elevator signaling apparatus comprising an electrically-controlled indicator for an elevator-car, a directional signaling device located at a floor of the building and electrically connected to the indicator, and comprising two switches for up and down signals and latches for retaining the switches in set position, a gate at such floor for admission to the car, and directional restoring means controlling the latches and automatically controlled by the movement of the car and by the movement of the gate.

19. An elevator signaling apparatus comprising a plurality of electrically-controlled signal-indicators for a plurality of elevator-cars, directional signaling devices located at floors of the building and electrically connected to the indicators, each of such signaling devices comprising switches for up and down signals and latches for retaining the switches in set position, gates at the different floors for admission to the cars, and directional restoring means controlling the latches and controlled by the movement of the corresponding car and by the movement of a gate of the corresponding floor.

20. An elevator-signaling apparatus comprising a plurality of electrically-controlled signal-indicators for a plurality of elevator-cars, stationary indicators located at floors of the building, directional signaling devices located at floors of the building and electrically connected to the indicators, each of such signaling devices comprising switches for up and down signals and latches for retaining the switches in set position, gates at the different floors for admission to the different cars, and directional restoring means controlling the latches and controlled by the movement of the corresponding car and by the movement of a gate of the corresponding floor.

21. An electrical signaling system for elevator-cars comprising directional electric-light annunciators having a plurality of lamps and carried by the elevator-cars, signaling-switches located at floors of the building and connected to corresponding indicating-lamps, gates for admission to the cars, restoring means controlled by corresponding gates and controlling the indicating-lamps, and directional switches for each car controlled by the movement of the car to limit the indications to those corresponding to the direction of movement of the car, substantially as set forth.

22. An electrical signaling system for elevator-cars comprising directional electric-light annunciators having a plurality of lamps and carried by the elevator-cars, stationary directional lamp-indicators located at the floors of the building, signaling-switches located at floors of the building and connected to corresponding indicating-lamps, gates for admission to the cars, restoring means operated by corresponding gates for restoring the lamps to non-indicating condition, directional switches for each car controlled by the movement of the car to limit the indications of the annunciator of the car to those corresponding to the direction of movement of the car, and directional switches for the stationary lamps for each car controlled by the elevator mechanism to limit the indications of such lamps to those corresponding to the direction of movement of the car, substantially as set forth.

23. In an electrical signaling system for elevator-cars, the combination of indicators for the elevator-cars, signaling-stations having signaling-switches connected to the indicators, said switches having latches for restraining them in set position, gates for admission to the cars, and directional restoring means individual to each floor, controlled by the gate and controlling the latches, substantially as set forth.

24. In an electrical signaling system for elevator-cars, the combination of indicators for the elevator-cars, signaling-stations having signaling-switches connected to the indicators, said switches having latches for restraining them in set position, gates for admission to the cars, and directional tappet-bars individual to each floor for releasing said latches and thereby restoring the indicators to non-indicating condition, said tappet-bars being operated by the gates of the corresponding floor, substantially as set forth.

25. In an electrical signaling system for elevator-cars, the combination of indicators for the elevator-cars, signaling-stations having signaling-switches connected to the indicators, said switches having latches for restraining them in set position, gates for admission to the cars, release-levers actuated by the elevator transmission-gear, and directional tappet-bars individual to each floor, having means for actuating said latches, the release-levers being adapted to coact with the elevator-gates, whereby, upon a suitable move-

ment being given to a gate of the corresponding floor, the said release-levers will actuate the proper directional tappet-bar, whereupon the latter will release the proper latch, thereby restoring the indicators to non-indicating condition, substantially as set forth.

26. In an electrical signaling system for elevator-cars, the combination of indicators for the elevator-cars, signaling-stations having signaling-switches connected to the indicators, said switches having latches for restraining them in set position, a series of release-levers connected together for each of said elevator-cars, having a shifting-lever, a restraining-latch, and a directional transmission-gear actuated by the elevator transmission-gear, gates for admission to the cars, and directional tappet-bars individual to each floor having means for actuating said latches, the release-levers being adapted to coact with the elevator-gates, whereby, upon a suitable movement being given to a gate of the corresponding floor, the corresponding release-lever will actuate the proper directional tappet-bar, whereupon the latter will release the proper latch, thereby restoring the indicators to non-indicating condition, substantially as set forth.

27. In an electrical signaling system for elevator-cars, the combination with the transmission-gear of the cars and a reduction-gear, of indicators for the elevator-cars, stationary indicators, directional switches for the stationary indicators individual to each car and controlled by the movement and direction of the aforesaid reduction-gear, for limiting the indications of the stationary indicators to those corresponding to the direction of movement of the car, signaling-stations having signaling-switches connected to the indicators, said switches having latches for restraining them in set position, a series of release-levers connected together for each of the said elevator-cars, having a shifting-lever, a restraining-latch and a directional transmission-gear, comprising a crank and a connecting-rod actuated by the elevator transmission-gear, gates for admission to the cars, and directional tappet-bars individual to each floor, having means for actuating the said switch-latches, the release-levers being adapted to coact with the elevator-gates, whereby, upon a suitable movement being given to a gate of the corresponding floor, the corresponding release-lever will actuate the proper directional tappet-bar, whereupon the latter will release the proper switch-latch, thereby restoring the indicators to non-indicating condition, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN McLEAN.

Witnesses:
PHILIP K. STERN,
CHAS. WAHLERS.