

L. W. GIVAN.
 TRAIN ANNUNCIATOR.
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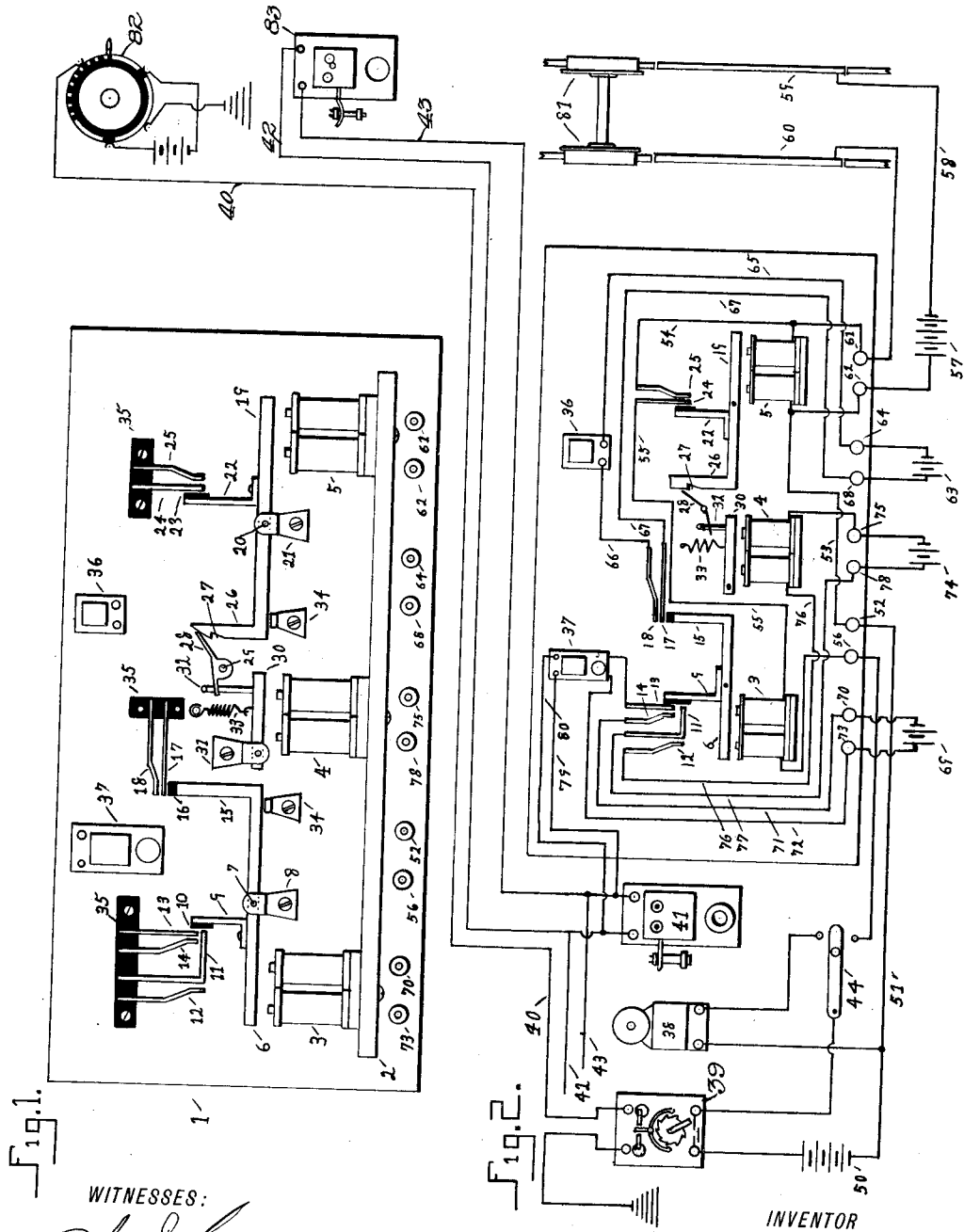


Fig. 1.

WITNESSES:

John G. Dauble
John G. Dauble

Fig. 2.

INVENTOR

Leslie W. Givan
 BY

N. B. Munnell
 ATTORNEY.

UNITED STATES PATENT OFFICE.

LESLIE W. GIVAN, OF SPRING LICK, KENTUCKY.

TRAIN-ANNUNCIATOR.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, LESLIE W. GIVAN, a citizen of the United States, residing at Spring Lick, in the county of Grayson and State of Kentucky, have invented a new and useful Train-Annunciator, of which the following is a specification.

This invention relates to an improved construction of train annunciators whereby certain advantages hereinafter set forth are obtained.

This invention has for an object to provide means whereby a train-despatcher may ascertain if a train has passed a station where there is no agent on duty.

Many railways use the telephone for despatching trains, and have in service a selective means for calling a desired station without disturbing any other station. The telephones are usually connected in multiple on one circuit, and the selective calling means in series on another circuit. The calling means consisting of an instrument installed in each station, and operated by electric currents of varying intensity or polarity, whereby the despatcher may close a local circuit and ring a call bell. The despatcher wishing to obtain information as to the progress of a train, calls a station, at which he knows the train is due and, upon the agent answering, is informed verbally if the train has passed or not. But there are many stations where no agents are on duty at night, the despatcher can then only obtain the information from "all night stations," that is where agents are on duty at night, these are far apart and the despatcher can not keep in satisfactory touch with the progress of the trains. My device is intended to enable the despatcher to ascertain at any time if a train has passed a station since the last time he called.

The object of this invention is to provide a device that may be "switched in" in place of the call bell, by the agent when he leaves the station, and that may be operated by the despatcher to ascertain if a train has passed that station.

A further object is to provide means of the nature set forth that shall be reliable in operation, economical in construction, that may be readily installed and easily maintained.

With the foregoing, and other objects in view, the invention consists of the novel construction, and arrangement of parts to

be hereinafter referred to and illustrated in the accompanying drawing, which forms a part of this specification, in which is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications may be resorted to which come within the scope of the claims appended hereunto.

In the drawings, in which similar reference numerals designate like parts in the different views;—Figure 1, is a front elevation of an embodiment of my invention and Fig. 2, a diagrammatic plan showing the circuit connections at a local, or way station.

A circuit controlling device, 39, is installed in each station. These devices are connected (usually in series) to a line, 40, that extends, from the train despatcher's office, to each station, on the section of road under the train despatcher's charge, and are responsive to currents of varying strength, frequency, or polarity sent out over the line by the despatcher; and provides means whereby the despatcher may by the manipulation of a transmission device 82, (that may be of any suitable construction) close a local circuit in any desired station, without disturbing any other station. A call-bell, 38, is located in each station, and is adapted to be connected in a local circuit controlled by the circuit closing device 39. A telephone, 41, installed in each station and connected with line wires, 42—43, extending from the train despatcher's office, provides means, in connection with a similar instrument, 83, in the despatcher's office, for oral communication.

My device is intended to be connected in the local circuit, controlled by the circuit controlling device 39, in lieu of the call-bell.

Referring to the drawings, 1 designates the back, that may be of any suitable material, on which the apparatus is mounted. A shelf, or ledge, 2 is secured on the back near the lower edge thereof, on the shelf 2 are mounted magnets 3, 4, and 5, above the magnet 3 an armature lever 6 suitably fulcrumed, at 7 in a bracket 8. An arm 9 erected on the lever 6, near the fulcrum thereof, and provided with an insulated portion 10, is adapted to bear against the contact springs 11 and 13 pressing them, respectively, against the springs 12 and 14; 11 and 12 being in the release circuit and 13 and 14 in the transmission circuit. On the

end of the lever 6 is a finger 15, provided with a tip of insulating material 16, adapted to be brought to bear against and close the contact springs 17—18, in the signal circuit. Above the magnet 5 an armature-lever 19 is suitably fulcrumed, at 20, in a bracket 21. On the lever 19, near the fulcrum thereof an arm 22 is erected, and provided with an insulated portion 23, adapted to bear against and close the contact springs 24—25, in the main circuit. On the end of the lever 19 is a finger 26, provided with a notch 27. A pawl 28, pivoted at 29, is adapted to engage in the notch 27 and maintain the lever 19 in the position to which it is moved by the magnet 5. Above the magnet 4 an armature 30 is fulcrumed in a bracket 31, and is provided with a finger 32 adapted to engage the pawl 28 and disengage it from the notch 27 when the armature 30 is attracted by the magnet. A spring 33 serving to hold the armature 30 normally away from the magnet and the finger 32 out of engagement with the pawl 28. Stops 34 are provided to limit the travel of the levers 6 and 19. The contact springs may be constructed and mounted in any desired manner, but I have illustrated them as formed of sheet metal and mounted in blocks 35 of insulating material such as fiber, or hard rubber, the blocks 35 being secured to the back 1, in any suitable manner, as by screws.

An audible annunciating device 36, that may be any suitable electrical sound producing device, but that I have illustrated as a buzzer, is located near the top of the board 1. In proximity to the annunciating device 36 is located a transmission device 37, adapted to take up and transmit the sound from the annunciating device.

37 is the transmission portion of a telephone, *i. e.*, the ordinary form of carbon transmitter and an induction coil, and is too well known to need extended description. The secondary winding of the induction coil is connected by the wires 79—80 to the leads of the local telephone 41, that is connected to the line wires 42—43, the primary winding of the induction coil being included in the transmission circuit described elsewhere.

Referring to the diagram Fig. 2, 38 designates a call bell, 39 a selector, connected in series on the line 40, by means of which the train despatcher may close a local circuit and ring the bell 38. A telephone 41 is connected to the line wires 42 and 43. A switch 44 of suitable construction, is provided that serves to connect the bell or the main circuit 45 to the selector 39. There are five circuits;—A main, or operating circuit; a control, or track circuit; an annunciator, or buzzer circuit; a transmission circuit, and a release circuit. The main circuit

is, from the battery 50, by wire 51 to binding post 52, circuit wire 53 to magnet 5, wire 54 to contact springs 25—24 wire 55 to magnet 3, to binding post 56, to switch 44, to selector 39, to battery 50. This circuit is normally open at two points, the contact springs 25—24 and in the selector, it may be closed in the selector by the despatcher, and at the springs 25—24 by the wheels of a passing train closing the track circuit, as they pass over the insulated rail sections 59—60. The track circuit is from a battery 57, wire 58 to an insulated section of rail 59, of an insulated section of track, from the other rail 60 to binding post 61, to magnet 5, to binding post 62, to battery 57. The annunciator circuit, is from a battery 63, to binding post 64, wire 65 to buzzer 36, wire 66 to contact springs 17—18, wire 67 to binding post 68, to battery 63. The transmission circuit, is from a battery 69 to binding post 70, wire 71 to contact springs 14—13 to the transmitter 37, through the primary winding of the induction coil, in the transmission device by wire 72 to binding post 73 thence to battery 69. The release circuit is from the battery 74 to binding post 75 thence to magnet 4, wire 76 to contact springs 12—13, wire 77 to binding post 78 thence to battery 74.

The operation is as follows: When the agent leaves the station he throws the switch 44, thereby connecting the main circuit with the selector. If a train passes a station, say "A", it will, by means of the wheels 81 thereof passing over the insulated sections of rail 59—60, close the track circuit, this will energize magnet 5 attracting lever 19, thus bringing the arm 22 against the spring 24 closing the main circuit at the springs 24—25. When the lever 19 is drawn down the pawl 28 will engage with the notch 27, holding the lever in the position to which it is drawn, thus keeping the main circuit closed at the springs 24—25, after the train has passed. If now the despatcher "comes in" closing the main circuit at the selector, magnets 3 and 5 will be energized, magnet 3 will draw down the armature 6 causing the following actions to ensue simultaneously: 1st. The finger 9 presses the spring 11 against 12 closing the release circuit, thus energizing the magnet 4, this attracts the armature 30 bringing the finger 32 into engagement with the pawl 28 withdrawing it from the notch 27 thus releasing the lever 19 which would now fall, opening the main circuit at the springs 24—25, but that the magnet 5 being now energized by the main circuit, the lever 19 is maintained in position, thereby holding the main circuit closed at the springs 24—25 as long as it is closed at the selector. 2nd. Finger 15, on the end of lever 6, presses spring 17, thereby holding the main circuit

and sounding the audible signal. 3rd. Finger 9, on the lever 6, presses the spring 13 against 14 closing the transmission circuit, whereupon the signal produced by 36 is transmitted over the circuit wires 79—80 to the main line wires 42—43 thence to the despatcher, who hearing the signal knows that a train has passed that station. Having ascertained that fact the despatcher "drops" the station, the main circuit being opened at the selector the different parts resume their normal position. The despatcher now "calls", say "B", if the train has not reached "B" he will get no response, as the main circuit will be open at the springs 24—25. By calling successive stations the despatcher may readily locate a train, and keep in touch with its progress.

Having thus described my invention so that any one skilled in the art pertaining thereto may make and use the same I claim,—

1. In a train annunciator, a main circuit normally open at two points, means controlled by the train despatcher for closing it at one point, means adapted to be operated by a passing train for closing it at the other point, and means for holding it closed, at said last named point, after the passage of the train.

2. In a train annunciator, a signal circuit including an audible signal, a circuit including a transmitter, a main circuit normally open at two points and including means for closing the aforesaid circuits, means whereby said main circuit is closed at one point by a passing train and selective means under the control of the train despatcher for closing said main circuit at the other point.

3. In a train annunciator, a main circuit normally open at two points, a second circuit adapted to be closed by a passing train, means included in said second circuit for closing the main circuit at one of said points, means for retaining the main circuit closed after the passage of the train, and means controlled by the main circuit for releasing said retaining means.

4. In a train annunciator, a main circuit normally open at two points, a second circuit adapted to be closed by a passing train, means included in said second circuit for closing the main circuit at one of said points, means for retaining the main circuit closed at said point after the passing of the train, a signal circuit including an audible signal, a transmission circuit including a transmitter, a release circuit including means for releasing the aforesaid retaining means, means controlled by the main circuit for closing said release circuit, and means included in the main circuit for closing said signal and transmission circuits.

5. In a train annunciator, a main circuit

normally open at two points, means controlled by the train despatcher for closing it at one point, means adapted to be operated by a passing train for closing it at the other point, and means for holding it closed, at said last named point, after the passage of the train, a circuit including an audible signal, and means included in the main circuit for closing said signal circuit.

6. In a train annunciator, a main circuit normally open at two points means controlled by the train despatcher for closing it at one point, means adapted to be operated by a passing train for closing it at the other point, and means for holding it closed at said last named point, after the passage of the train, a circuit including an audible signal, a circuit including a transmitter, and means included in the main circuit for closing said circuits.

7. In a train annunciator, a main circuit normally open at two points, means controlled by the train despatcher for closing it at one point, a second circuit adapted to be closed by a passing train, electromagnetic means included in said second circuit for closing the main circuit, said electromagnetic means also included in the main circuit, means for holding the main circuit closed at the second named point after the passage of a train, a circuit including an audible signal, a circuit including a transmitter, means included in the main circuit for closing said signal and transmission circuits, and means controlled by the main circuit for releasing said holding means.

8. A line circuit including selective circuit closing means, a telephone circuit, a main circuit normally open at two points and adapted to be closed at one point by said selective means, means whereby said main circuit is closed at the other point by a passing train, a normally open circuit including a signal, a transmission device having primary and secondary windings, a normally open circuit including the primary winding of the transmission device, a secondary winding of said device being connected to the telephone circuit, and means included in the main circuit for closing said signal and primary circuits.

9. A signal circuit including an audible signal, means for transmitting said signal to the train despatcher, means under the control of the train despatcher for sounding said signal, said means adapted to be rendered operative by the passage of a train.

10. A line circuit including selective circuit closing means, a telephone circuit, a main circuit normally open at two points and adapted to be closed at one point by said selective means, another circuit including means for closing the main circuit at the other point and adapted to be closed by a passing train, means for holding the

main circuit closed, at the second named point, after the passage of the train, a normally open circuit including a signal, a transmission device having primary and secondary windings, a normally open circuit including the primary winding of the transmission device, the secondary winding being connected to said telephone circuit, a normally open circuit including means for releasing said holding means, means including 10 in the main circuit for closing said signal and primary circuits, and means controlled by the main circuit for closing said release circuit.

LESLIE W. GIVAN.

Witnesses:

WILL P. FORBIS,

W. B. MUNNELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."