

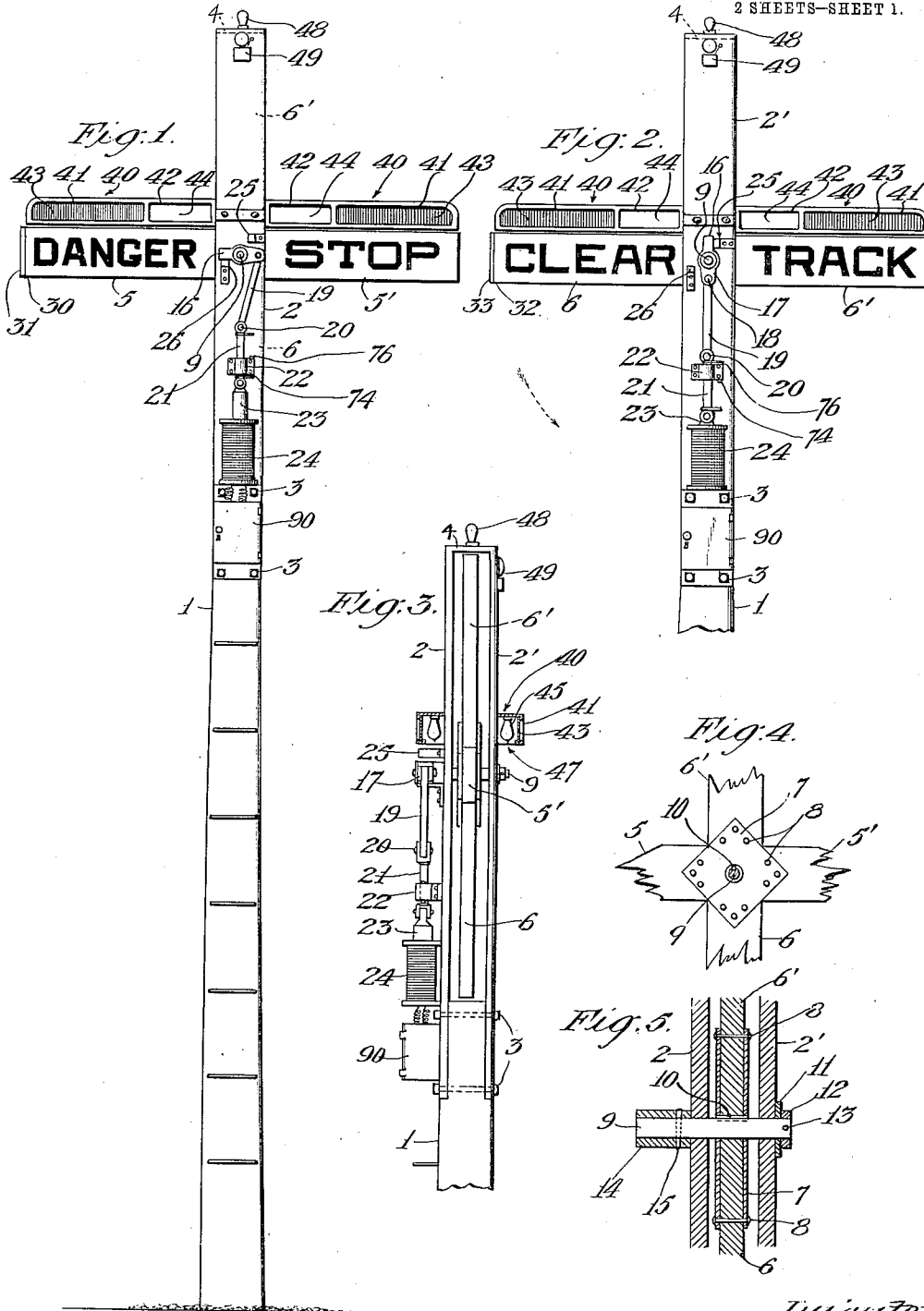
P. J. CHASE.
SIGNAL DISPLAY.

APPLICATION FILED OCT. 10, 1911.

1,058,219.

Patented Apr. 8, 1913.

2 SHEETS-SHEET 1.



Witnesses:
Louis W. Gratz.
O. H. Shelton

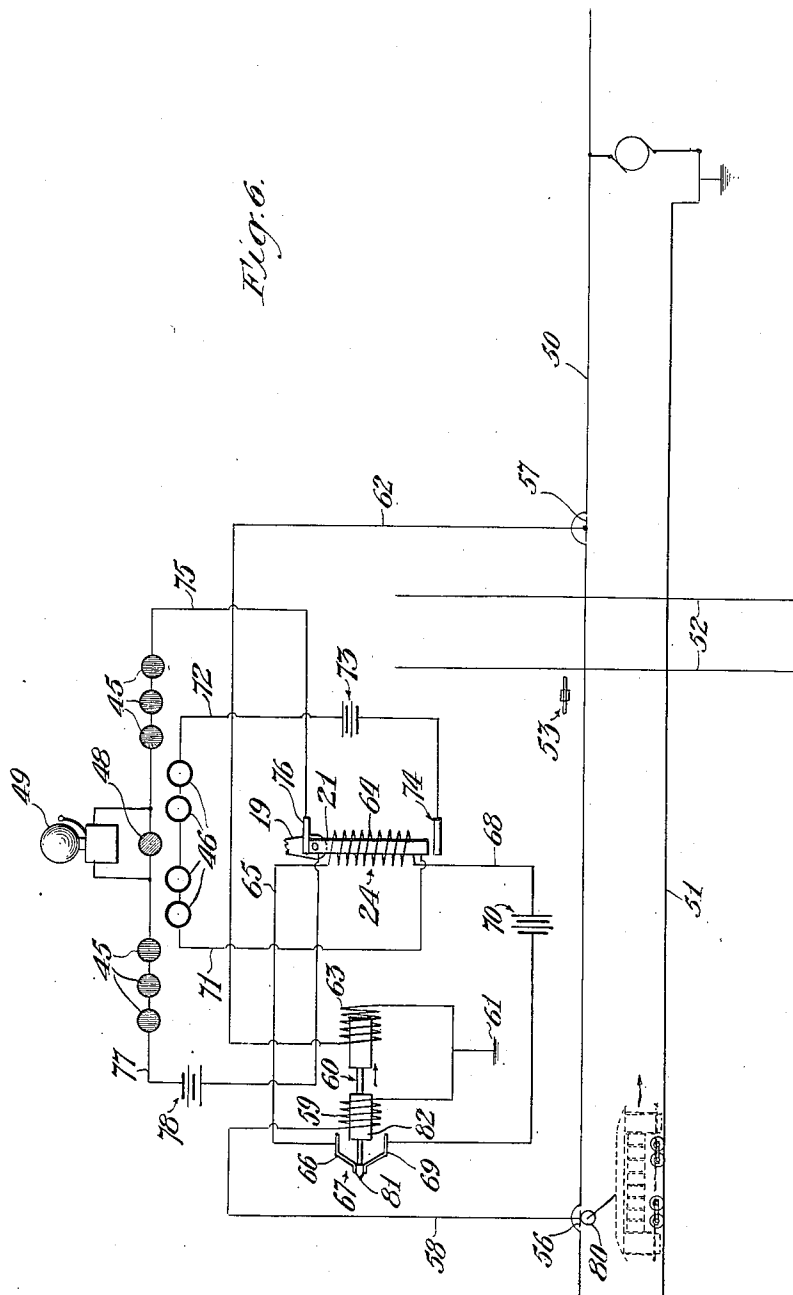
Inventor
Philip J. Chase
By Bernard Graham
his Attorney

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UNITED STATES PATENT OFFICE.

PHILIP J. CHASE, OF LOS ANGELES, CALIFORNIA.

SIGNAL-DISPLAY.

1,058,219.

Specification of Letters Patent.

Patented Apr. 8, 1913.

Application filed October 10, 1911. Serial No. 653,949.

To all whom it may concern:

Be it known that I, PHILIP J. CHASE, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Signal-Display, of which the following is a specification.

My invention relates to a display device to be placed at the intersection of streets or roads with railway or electric lines for the purpose of giving warning of the approach of trains to the crossing, and one of the main objects of the present invention is to produce a signal device which shows positively both a "danger" signal and a "clear track" signal as the condition may be.

Another object of the present invention is to produce a signal device of the character described in which the supporting means serves as a concealing means for a portion of the signal.

Another object of the present invention is to produce a signal device of the character described which is so constructed that the display is clearly distinguishable both during the day and at night.

Another object of the present invention is to produce a signal device of the character described of simple and economical form which may be operated with a minimum amount of power.

Other objects and advantages will appear hereinafter from the following specification.

Referring to the drawings, which are for illustrative purposes only: Figure 1 is an elevation of the signal display, showing the manner of supporting the same, the device being in position to show a "danger" signal. Fig. 2 is a view similar to Fig. 1, showing the device in position to show a "clear track" signal. Fig. 3 is a side elevation of the device shown in Fig. 1. Fig. 4 is a fragmentary view showing the manner of connecting the signal arms. Fig. 5 is a vertical sectional view of a portion of the supporting device, showing the manner of mounting the signal arms therein. Fig. 6 is a diagrammatic view showing the electrical connections for operating the device.

The signal device is adapted to be mounted at streets and railway crossings and is adapted to be operated by electrical contact, or other suitable mechanism, placed on the railway at either side of the intersection, which device is operated by the trains pass-

ing thereover, one form of operating or controlling means being shown in the drawings.

The device consists of a suitable post or standard 1 having extending upwardly from the front and rear thereof a member 2, 2' which in the form shown consists of a plank of wood. Each member 2, 2' is firmly secured to the post 1 by means of suitable bolts 3, and the upper ends of the members 2, 2' are spaced apart by a suitable block 4 fastened therebetween in any suitable manner. The members 2, 2', arranged as above described, form a casing open at each side for the purpose of receiving the signal display. The signal display consists of two pairs of arms 5, 5' and 6, 6', the inner ends of which are firmly secured together to form a cross between metal plates 7 by rivets 8. The plates 7 are formed with a central opening therethrough to receive a stud or shaft 9 locked to the plate 7 by means of a key 10. The shaft 9 extends through the members 2, 2' and is secured therein at one end by a washer 11 and collar 12 fastened to the shaft 9 by means of a pin 13 which extends through the collar and shaft. The other end of the shaft is provided with a collar 14 secured to the shaft by means of a pin 15. The collar 14 is provided with a pair of lugs 16 and 17, the lug 17 being pivoted at 18 to a link 19 having its lower end pivoted at 20 to a rod 21. The rod 21 is slidably mounted in a bearing 22 and fastened at its lower end to the core 23 of a solenoid 24. Suitable stops 25 and 26 are secured to the member 2 in position to be engaged by the lugs 16 and 17 of the collar 14, which being secured to the shaft 9 limit the rotative movement of such shaft and the parts carried thereby to one quarter of a revolution. The display arms 5, 5' and 6, 6' may be marked in any desired manner with a proper warning, which in the form shown consists of the words "Danger" "Stop" painted or marked on the arms 5, 5' and the words "Clear" "Track" marked on the arms 6, 6'. The arms 5, 5' in the position shown in Fig. 1 extend horizontally from each side of the supporting means in visible position, and the arms 6, 6' are hidden behind the members 2, 2' of the supporting means.

It is desirable that the signal display should show the "danger" signal unless positively operated to show a "clear track,"

and for this purpose the end 30 of arm 5 is provided with a weight 31, and the end 32 of the arm 6 is provided with a weight 33. The weighted arms 5 and 6 being on the same side of the standard during their rotating movement rotate the arms in the direction of the dotted arrow Fig. 2 until the arms 5, 5' are in horizontal position, as shown in Fig. 1. This construction provides that if any portion of the signal controlling means between the tracks and the solenoid 24 becomes out of order that the arms will assume the position shown in Fig. 1, displaying a "danger" signal.

For the purpose of illuminating the signal display at night, four boxes 40 are provided, two of which are secured to the upright 2 in any suitable manner, one at each side thereof, and two boxes secured to the upright 2' in any suitable manner, one at each side thereof. Each box 40 is provided with two openings 41 and 42 in the front thereof, the opening 41 being covered with a plate 43 of red glass, and the opening 42 being covered with a plate 44 of white glass. Behind the red glass in each box is arranged a set of electric lamps 45, and behind the white glass in each box is a set of electric lamps 46. The underside of each box 40 is open, as indicated at 47, so that the light from the lamps in each box 40 will shine directly on the arm of the display device which is in horizontal position therebeneath and illuminate the arms so that the reading matter thereon may be readily seen. Mounted on the top of the uprights 2, 2' is a green lamp 48, and directly thereunder on the upright 2' is a bell 49 operated in the manner hereinafter described.

The controlling mechanism for the signal display above described, is shown in connection with an electric railway, the trolley wire of which is indicated at 50, (see Fig. 6), and the track at 51. The street crossing is indicated at 52 and the display at 53. A contact 56 is placed on the trolley wire 50 at one side of the crossing 52, and a similar contact 57 is placed on the opposite side of the street crossing. The contact 56 is connected by wire 58 to winding 59 of a relay 60, which winding is grounded at 61. The contact 57 is connected by wire 62 to the winding 63 of the relay 60, which winding is grounded at 61. The solenoid 24 is provided with a winding 64 having one end thereof connected by wire 65 to a spring contact 66 of a switch 67, and the other end of the winding 64 is connected by wire 68 to the other spring contact 69 of the switch 67, the normal position of the contacts 66 and 69 being together, thereby closing the circuit through the winding 64 of the solenoid 24 which receives an electric current from a battery source 70 in the wire 68. The electric lamps 46 behind the white glass

in the boxes 40 are connected by wire 71 to the core 21 of the solenoid and by wire 72 through battery 73 to a contact 74. The electric lamps 45 behind the red glass in the boxes 40, green lamp 48, and the bell 49, are connected in circuit by means of a wire 75 to contact 76 and by means of wire 77 through battery 78 to the core 21 of the solenoid.

The device operates as follows:—The car indicated by dotted lines (see Fig. 6) moving in the direction of the arrow and approaching the crossing 52 has made contact by means of the trolley 80 with contact 56, closing an electric circuit through wire 58, winding 59 of the relay to ground 61. This circuit causes the relay to assume the position shown in Fig. 6, a wedge 81 of insulating material secured to one end of the core 82 being forced between the contacts 66 and 69 of the switch 67, thereby breaking the circuit through wires 65, 68, battery 70 and winding 64 of the solenoid. The upper end of the solenoid being connected to the rotatable arms of the signal display, as heretofore described, is caused to move upward due to the movement of the weighted arms which assume the position shown in Fig. 1, displaying the signal display "Danger" "Stop." The upward movement of the solenoid closes the circuit through the lamps 45, 48, and bell 49 by wires 75, 77, battery 78, contact 76 and the core of the solenoid, thereby illuminating the lamps 45 behind the red glass in the boxes 40, the green light 48, and causing the bell 49 to ring.

The parts remain in the position above described until the train or car has passed the crossing and the trolley 80 contacts with the contact 57 which closes a circuit through wire 62, winding 63 of the relay to the ground 61. This circuit causes the core of the relay to move in the direction of the arrow until the wedge 81 has been withdrawn from between the contacts 66 and 69 of switch 67 which come together and close a circuit through wire 65, winding 64 of solenoid 24, wire 68 and battery 70 which energizes the solenoid causing the core 21 to be drawn downward into engagement with contact 74.

The movement of the solenoid just described closes a circuit through contact 74, battery 73, wire 72, lamps 46 behind the white glass in the boxes 40, wire 71 and core 21 of the solenoid, thereby displaying a white light. The downward movement of the core 21 of the solenoid pulls link 19 downwardly thereby rotating shaft 9 and the display arms carried thereon into the position shown in Fig. 2, displaying the signal "Clear" "Track", in which position the parts of the device remain until another car operates the contact 56, as above described. The relay 60 and battery above

described may be inclosed in a suitable box 90 mounted on the standard 1 in any suitable manner.

What I claim is:—

5 1. A signal display comprising a standard, a pair of cross arms rotatably mounted on said standard, said pair of cross arms consisting of four arms extending outwardly from a common center, and concealing 10 means whereby opposite cross arms are alternately concealed and exposed.

2. A signal display comprising a standard, a pair of cross arms rotatably mounted on said standard, said pair of cross arms 15 consisting of four arms extending outwardly from a common center, concealing means whereby opposite cross arms are alternately concealed and exposed, and means for limiting the rotative movement of said 20 cross arms.

3. A signal display comprising a standard, a pair of cross arms rotatably mounted on said standard, said pair of cross arms consisting of four arms extending outwardly from a common center, means for 25 concealing one of said cross arms, weight means for causing said cross arms to rotate in one direction, positive means for causing said arms to rotate in the opposite direction, and means for limiting the rotative 30 movement of said cross arms.

4. A signal display comprising a standard, members secured to each side of said standard extending upwardly therefrom, a 35 shaft rotatably mounted in said members, a pair of cross arms mounted on said shaft between said members, said pair of cross arms consisting of four arms extending outwardly from a common center, weight means 40 on said arms for rotating said arms in one direction, and means connected to said shaft for positively rotating said arms in the opposite direction.

5. A signal display comprising a standard, a member secured to each side of said 45 standard extending upwardly therefrom, a shaft rotatably mounted in said members, a pair of cross arms secured to said shaft between said members, a collar secured to said shaft, a pair of lugs on said collar, 50 means on one of said extensions coacting with one of said lugs to limit the movement of said lug, means connected to the other lug to positively operate said shaft in one direction, and weight means on said cross 55 arms to rotate said shaft in the opposite direction.

6. A signal display comprising a standard, a pair of cross arms rotatably mounted on said standard, means for rotating said 60 cross arms, and lighting means for illuminating said cross arms, said lighting means consisting of a pair of boxes mounted on each side of said standard having an opening in the bottom of each box thereon, and 65 lamps in each of said boxes.

7. A signal display comprising a standard, a pair of cross arms rotatably mounted on said standard, a pair of boxes mounted on each side of said standard, each box having 70 a pair of openings in the face thereof, a set of lamps behind each opening, and means for simultaneously operating said cross arms in one direction and lighting one set of lamps in each box, and means for 75 simultaneously operating said cross arms in the opposite direction and lighting the other set of lamps.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 80 3rd day of October, 1911.

PHILIP J. CHASE.

In presence of—

LOUIS W. GROTZ,

RICHARD T. WARNER.