

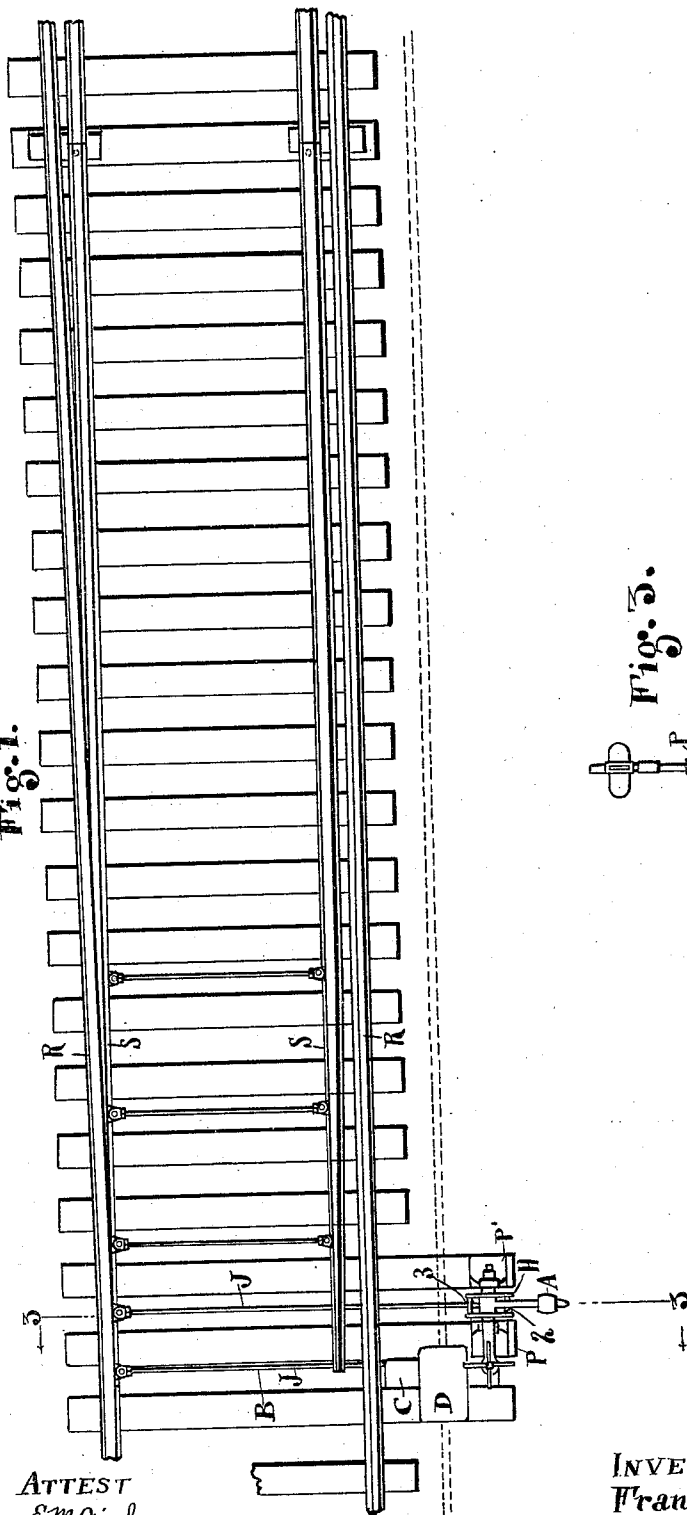
F. ZELE.
ELECTRIC SIGNAL FOR RAILWAY SWITCHES.
APPLICATION FILED MAR. 8, 1909.

Patented July 27, 1909.

2 SHEETS—SHEET 1.

929,363.

Fig. 1.



ATTEST
E. M. Fisher
J. C. Musson.

Fig. 3.

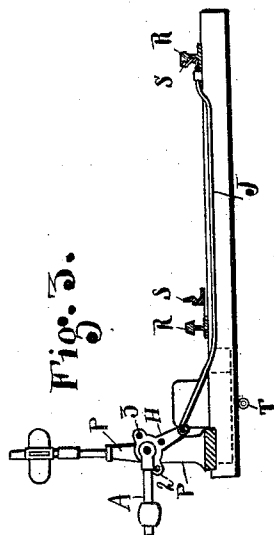
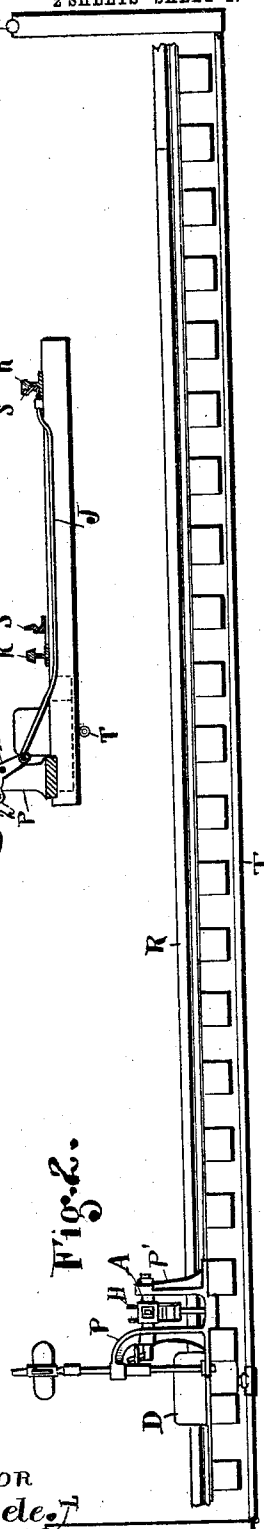


Fig. 2.



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2 SHEETS—SHEET 2.

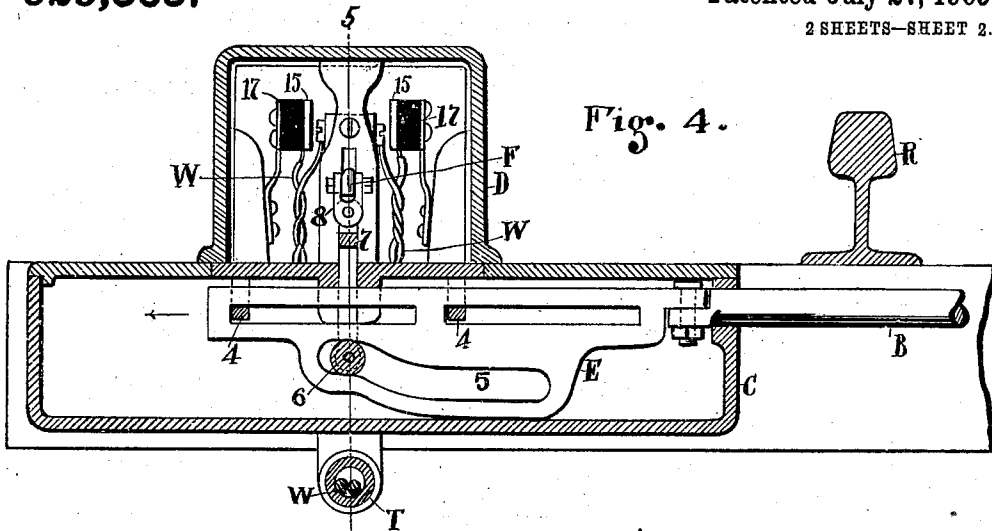


Fig. 4.

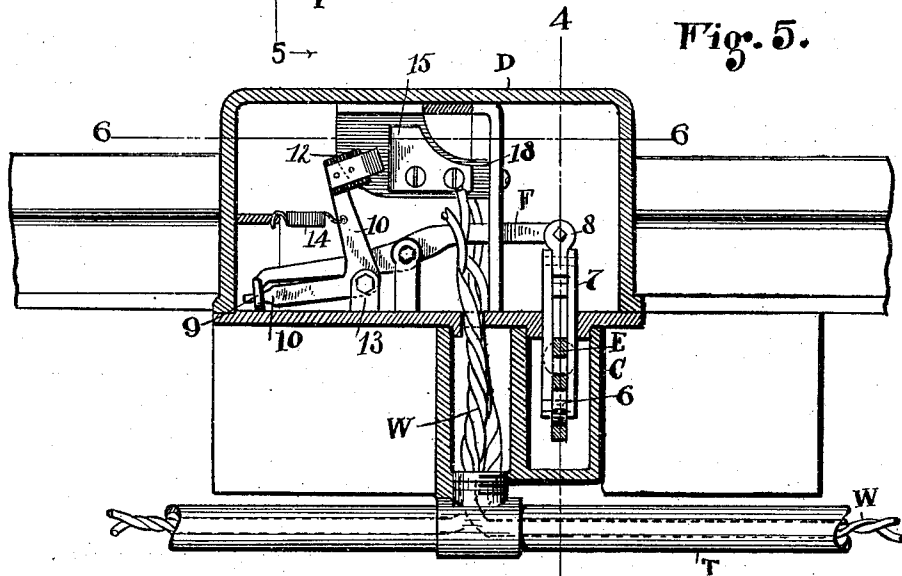


Fig. 5.

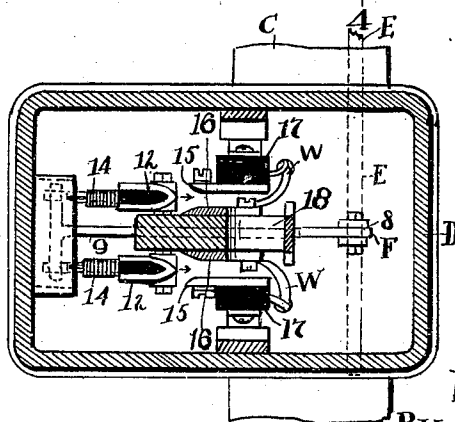


Fig. 6.

ATTEST
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INVENTOR
Frank Zele.
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UNITED STATES PATENT OFFICE.

FRANK ZELE, OF CLEVELAND, OHIO.

ELECTRIC SIGNAL FOR RAILWAY-SWITCHES.

No. 929,363.

Specification of Letters Patent.

Patented July 27, 1909.

Application filed March 8, 1909. Serial No. 481,950.

To all whom it may concern:

Be it known that I, FRANK ZELE, subject of Austria-Hungary, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Electric Signals for Railway-Switches, of which the following is a specification.

My invention relates to an electric signal for railway switches, and the object of the invention is to provide means whereby a signal light will be automatically displayed or a signal bell rung or other device will be electrically operated as a notice on the line at a safe distance from a switch when, for any reason, the switch is open, all substantially as shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of a section of a railway with a switch and my improved signaling mechanism, and Fig. 2 is a side elevation thereof. Fig. 3 is a detail of the weighted lever and mechanism for throwing the switch. Fig. 4 is an enlarged vertical sectional elevation of the switch controlled electrical contact mechanism on line 4—4, Fig. 5. Fig. 5 is a cross section of said mechanism on line 5—5, Fig. 4, and Fig. 6 is a plan view on line 6—6, Fig. 5.

Now, having in mind that the object of the invention is to warn an approaching train when a switch is open, and that in this instance such warning is made through electric lights L at such distance from the switch that a train running at a high speed would have time to stop before the switch was reached, the several views disclose the mechanism by which these results are attained. Thus, the railway rails are represented by R and the switch by S, which is closed as shown. Lights L are shown in both directions. The throw of the switch is controlled by the mechanism plainly shown in Fig. 3, wherein a hanger H is shown as connected at the extremity of its stem to switch controlling rod J and adapted to throw the switch through said rod. Said hanger is suspended between two posts P and P', and a weighted arm A pivoted on the axis of said hanger is adapted to strike either one or the other of the cross portions 2 and 3 in said hanger and throw the hanger and the switch accordingly.

A rod B connects the extremities of the switches and extends inward at one end beneath rail R into sub-chamber C under hous-

ing D for the electrical mechanism. The said mechanism is dependent for its position on the relation of the switch to the track as determined through said rod B, and will be in or out of electrical contact as the switch is open or closed. If the switch be closed electrical connection will be broken and the parts be out of circuit, as shown herein. But when the position of said parts is reversed by throwing the switch S to open position the electrical contacts will be automatically closed and the danger signals or lamps L will be lighted. Now, as to this mechanism it will be seen in Fig. 4 that switch actuated rod B connects with a slide E in sub-chamber C which is carried in straight slots on supports 4 therein and slides thereon within limits. Said slide has a lengthwise cam slot 5 of different elevations at its ends, and a roller 6 on hanger 7 from lever F engages in said slot. Said hanger is suspended from one end of lever F, which is pivoted at about its middle in box D and connected at one end by a link 8 with said hanger. The said hanger extends down through a hole in the bottom of box D into chamber C and is bifurcated so as to come astride of the slide E and support said roller 6 in its end, said slide having its slot 5 conforming to said roller in side from end to end. Hanger or link 7 therefore has a straight up and down movement and is raised or lowered bodily according as its roller 6 occupies one end or the other of cam slot or channel 5. As shown the hanger is at its maximum elevation, and roller 6 is in the highest portion of said slot or channel and the switch is closed. When the switch is opened the slide E will be moved bodily inward on its supports 4 which will cause roller 6 to run down in slot 5 proportionately and thus carry down the hanger 7. As this occurs the electrical parts are caused to reverse their positions correspondingly under the direct and positive action of lever F. The said lever has a T shaped end 9 with holes in the ends of the cross portion thereof in which the lower extremities of the bell crank levers 10 loosely engage while their other extremities carry the knife shaped electrical contact members 12. Said bell cranks are pivoted at their angles on posts 13 and have retracting springs 14 adapted to assist in withdrawing them from contact positions.

Fixed terminal plates 15 and 16 are oppositely mounted on suitable fixed insulating supports 17 and 18, and the two electrical

circuits governed by said contact members 12 are closed and opened simultaneously by said members, which operate in unison and are thrown inward into closing relation between said terminal surfaces 15 and 16 when the switch is opened and withdrawn therefrom when the switch is closed, these operations occurring through lever F.

All electrical parts will be understood as being insulated that may be necessary to keep the current within legitimate channels, and the line or circuit wires W to the lights L have their connections with terminals 15 and 16.

A suitable tubing T is shown to inclose and protect the circuit wires.

What I claim is:

1. Circuit closing mechanism for a railway signal comprising a contact member and a bell crank carrying the same and a pivoted lever engaged with said bell crank, in combination with a railway switch, a slide connected therewith having a cam channel and a link engaged at one end with said lever and having a roller at the other end in said channel.
2. A signal mechanism for railways comprising electric circuits with signals in the ends thereof and means to close the circuits comprising a set of opposed terminals for each signal, a pivoted contact member for each set of terminals, a single pivoted lever operatively connected with both said contact

members, a railway switch and means between the same and said pivoted lever to actuate the lever and thereby actuate both said contact members in unison.

3. A railway switch, a rod connecting the ends of the switch and a slide having a cam slot lengthwise connected with the end of said rod, in combination with a bell crank lever and an electrical contact member thereon, a pivoted arm operatively engaged with said lever at one end and a link connection uniting the other end of said arm with said slotted slide.

4. In railways, a switch and a signaling mechanism comprising an electrical circuit provided with contact members, and a slide operatively connected with said switch and having a longitudinal slot highest at one end, in combination with a pivoted arm and a link at one end thereof provided with a roller adapted to run in the slot in said slide, a pivoted bell crank lever carrying one of said contact members and a spring to retract said lever and normally hold said contacts apart.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK ZELE.

Witnesses:

JOHN MIHELUC,
JERNEJ KNAUS.