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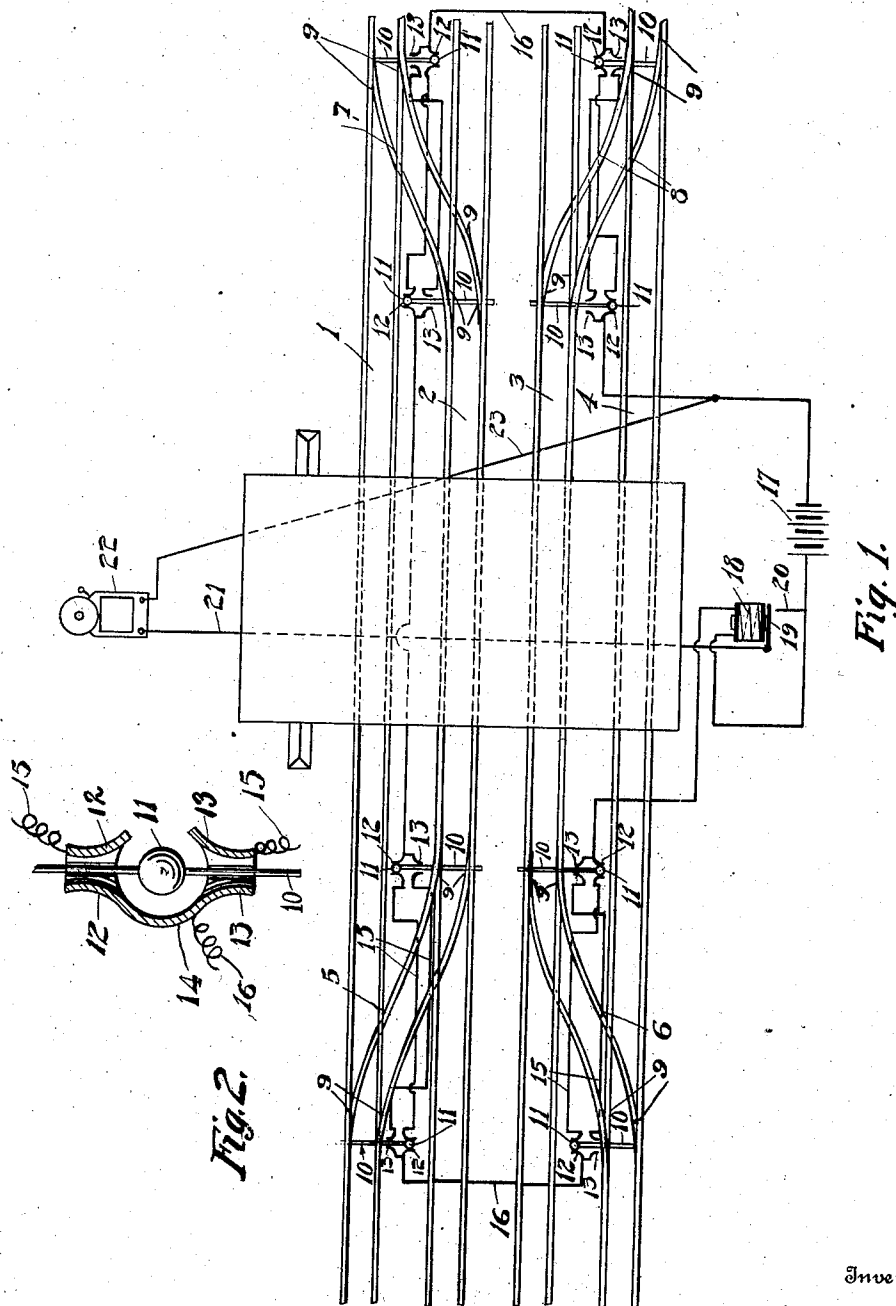
W. F. J. ENTRIKIN.

ELECTRIC SWITCH ALARM.

APPLICATION FILED JUNE 19, 1909.

954,176.

Patented Apr. 5, 1910.



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# UNITED STATES PATENT OFFICE.

WILLIBE F. J. ENTRIKIN, OF PARKESBURG, PENNSYLVANIA.

ELECTRIC SWITCH-ALARM.

954,176.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed June 19, 1909. Serial No. 503,082.

*To all whom it may concern:*

Be it known that I, WILLIBE F. J. ENTRIKIN, a citizen of the United States, residing at Parkesburg, in the county of Chester and State of Pennsylvania, have invented certain new and useful Improvements in Electric Switch-Alarms, of which the following is a specification.

My invention relates to an improved electric switch alarm, the object of the invention being to provide an electric switch alarm, in which the points of a single or series of switches are connected in a normally closed electric circuit, in which is located an electro-magnet, normally maintaining open a circuit with an alarm, so that in the event of a misplaced switch point, the main circuit will be broken, the electro-magnet de-energized and the circuit with the alarm closed, to sound an alarm, and give warning of a misplaced switch point.

A further object is to provide improvements of this character, in which the switch points at both ends of a crossover, control electric circuit closing means, whereby, unless the switch points at both ends of the crossover are properly positioned, the alarm will be sounded.

Heretofore a great many apparatuses have been devised to sound an alarm in the event of a misplaced switch, but when such devices have switch points at one end of a crossover properly positioned, the signal to the operator will show a perfect crossover, where as a matter of fact, the switch points, or one of the switch points at the other end of the crossover may be improperly placed, and a wreck might result. To obviate any possibility of such an occurrence, my invention was devised, and will now be described in detail.

With these and other objects in view, the invention consists in certain novel features of construction, and combinations and arrangements of parts as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings, Figure 1, is a diagrammatic plan view illustrating my improvements, and Fig. 2, is an enlarged view in longitudinal section illustrating one of the electric circuit closers.

1, 2, 3 and 4, are parallel tracks, and 5, 6, 7 and 8 are crossovers having switch points 9 at the ends of the crossovers, each pair of switch points being connected by a rod 10 so

as to compel each pair of switch points to move together. Each of these rods 10, which project beside the track, has a circuit closing ball 11 secured thereto, and is adapted to close an electric circuit between either of two pairs of contacts 12 and 13, of an electric circuit closer, as shown in detail in Fig. 2. Two of these contacts 12 and 13 of each electric switch, are connected as shown at 14, for a purpose which will hereinafter appear.

The circuit closers for the switch points at both ends of each crossover 5, 6, 7 and 8, are connected by electric wires 15, each wire 15 connecting the contact 12 of one circuit closer, with the contact 12 of the other circuit closer, so that unless both of these pairs of switch points are thrown to the same working position, or in other words, unless both pairs of switch points are properly positioned for a crossover, or are properly positioned to allow the train to pass along the main track without crossover, the electric circuit through said circuit closers will be broken, as will more fully hereinafter appear.

The connecting parts 14 of the several circuit closers are connected by wires 16 in an electric circuit with a battery 17, which circuit includes an electro-magnet 18, normally holding a pivoted armature 19 out of contact with a contact point 20, so as to open an electric circuit from said battery 17 to a wire 21, alarm 22, and wire 23, back to the battery. This alarm 22 will be located at a convenient point to give warning in the event of a misplaced switch point.

With the parts as shown diagrammatically in Fig. 1, the circuit is as follows: From a battery 17 through electro-magnet 18 to the circuit closer of the right hand switch points of crossover 6, through ball 11 and contacts 12, thence along wire 15 to the contacts 12 of the circuit closer at the left hand switch points of crossover 6, and in similar manner through the several circuit closers and wires of the several crossover switch points back to the battery, so that the magnet 18 is energized to hold armature 19 elevated, and maintain open the electric circuit with the alarm 22. If, for example, the right hand switch points of crossover 6 are thrown, so as to move the ball 11 between the contacts 13, these switch points will be properly placed for a crossover from track 3 onto track 4, and unless the switch points at the left of the crossover 6 are also positioned

properly for such a crossover, the electric circuit will be broken, and as soon as this occurs, spoon 19 will fail to contact with point 20 and the circuit will be closed to sound the alarm. Hence, if any switch point is misplaced throughout the system, the alarm will ring, and continuously ring until such switch point is properly placed.

While I have illustrated my improvements in connection with a number of switches, it is apparent that a separate alarm may be provided for each switch or any number of switches, so as to readily detect just which switch is out of order, and I do not therefore limit myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In an apparatus of the character described, the combination with two tracks, a crossover, and switch points at the ends of the crossover, of circuit closers located adjacent the switch points and each comprising two pairs of contacts, one contact of one pair being electrically connected to one contact of the other pair, a partial circuit the terminals of which are connected to said connections, cross connections between the remaining contacts of one circuit closer and the remaining contacts of the other circuit closer, a movable contact device connected with and operated by the switch points at each end of the crossover, and adapted to move between and close the circuit between either of said pairs of contacts, a battery and an electro-magnet in said partial circuit, whereby when the switch points at the ends of the crossover are swung in unison to closed position, the electric circuit will be closed through the pairs of contacts with which the circuit closers contact, and when thrown in unison to an open position, the electric circuit will be closed through the engage-

ment of the circuit closers with the other pairs of contacts, a second electric circuit including an alarm in a circuit with said battery normally broken by said electro-magnet, whereby when said switch points fail to operate in unison, said alarm will be given.

2. In an apparatus of the character described, the combination with two tracks, a crossover, and switch points at the ends of the crossover, a circuit closer located adjacent each of the switch points, and each circuit closer comprising two pairs of contacts, one contact of one pair being electrically connected to one contact of the other pair, a partial circuit the terminals of which are connected to said connections, cross connections between the remaining contacts of one circuit closer and the remaining contacts of the other circuit closer, a movable contact ball, a rod connecting said ball with the switch points, at each end of the crossover, whereby said balls are moved when the switch points are moved from one pair of contacts to the other, a battery and an electro-magnet included in said partial circuit, whereby when the switch points at the ends of the crossover are swung in unison to closed position, the electric circuit will be closed through the pairs of contacts with which the balls contact, and when thrown in unison to open position the electric circuit will be closed through the engagement of the balls with the other pairs of contacts, an alarm in an electric circuit with said battery, a movable armature in said circuit normally held by said magnet maintaining said second circuit open, whereby when said switch points fail to operate in unison the said alarm will be given.

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

WILLIBE F. J. ENTRIKIN.

Witnesses:

G. W. ROGERS,  
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