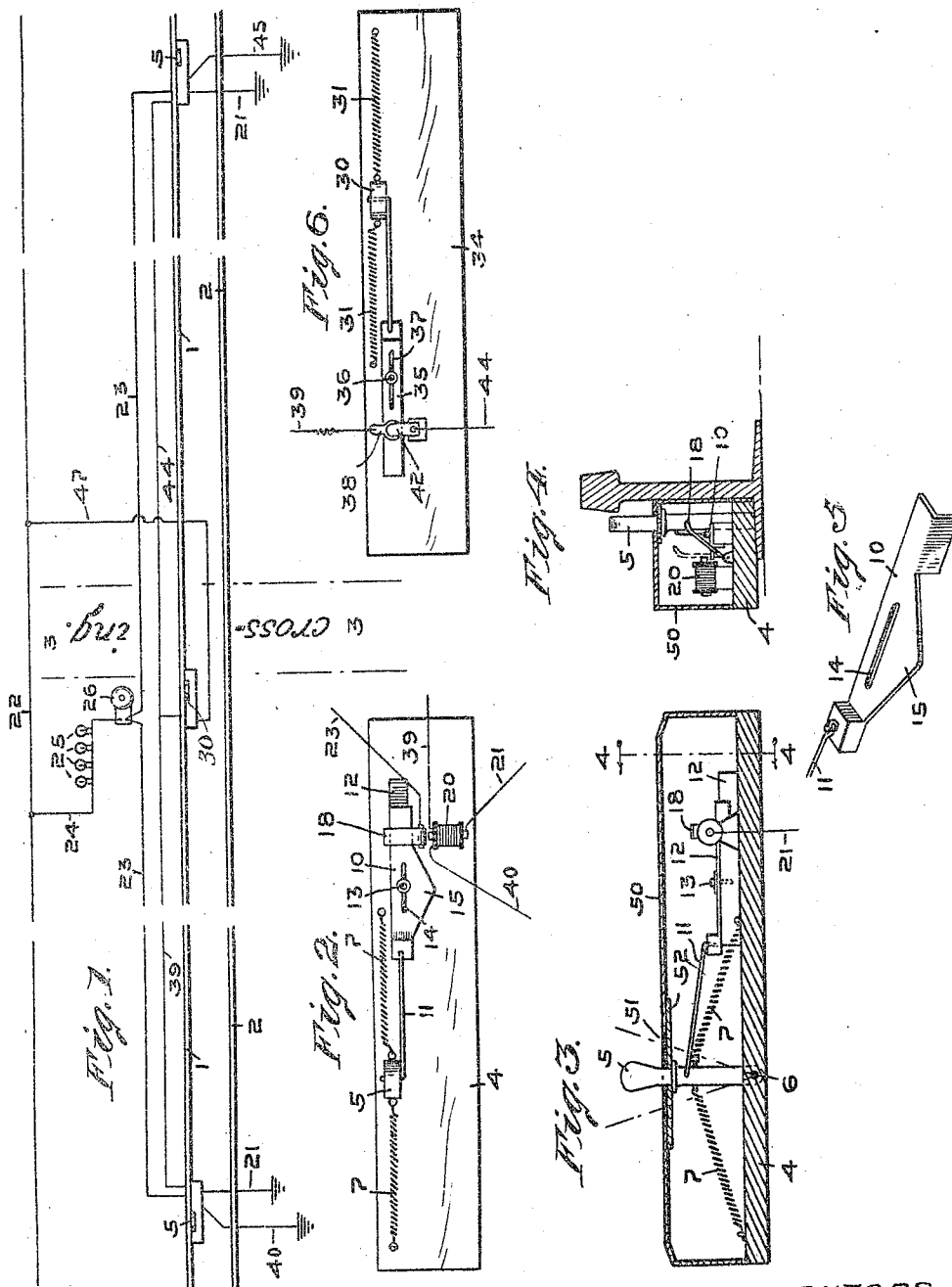


J. & W. H. JENNINGS.
RAILWAY SIGNAL DEVICE.
APPLICATION FILED AUG. 24, 1911.

Patented Dec. 10, 1912.

1,046,794.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN JENNINGS AND WILLIAM H. JENNINGS, OF GREENWOOD, INDIANA.

RAILWAY SIGNAL DEVICE.

1,046,794.

Specification of Letters Patent.

Patented Dec. 10, 1912.

Application filed August 24, 1911. Serial No. 645,855.

To all whom it may concern:

Be it known that we, JOHN JENNINGS and WILLIAM H. JENNINGS, citizens of the United States, residing at Greenwood, in the county of Johnson and State of Indiana, have invented certain new and useful Improvements in Railway Signal Devices, of which the following is a specification.

This invention relates to railway signals to be used on electric or steam roads and consists of a type embodying an automatic electrically operated signal mechanism actuated by trains advancing toward a station, tunnel or crossing from either direction, and also to be again actuated as the train leaves the station, tunnel or crossing; the object of the invention is to provide an automatically operated signal apparatus for steam and electric railways which is simple in construction, efficient in operation and cheap to install.

We accomplish the above object of the invention by means of the signal device illustrated in the accompanying drawings, forming a part hereof, in which—

Figure 1 is a top or plan view of a section of a railway track crossing a highway. Fig. 2 is an enlarged plan view of the mechanism for closing the signal circuit, with the shield, for protecting the mechanism, removed. Fig. 3 is a longitudinal central vertical sectional view of the construction shown in Fig. 2. Fig. 4 is a cross-section on the line 4—4 in Fig. 3. Fig. 5 is a perspective view of the movable plate for mechanically closing the signal circuit. Fig. 6 is a top or plan view of the device for breaking the magnet circuit.

Referring to the drawings, 1 and 2 represent the rails of a single railway track, and 8 represents a highway crossing said track. About one-thousand feet or more on each side of the crossing 3 is arranged a mechanism for closing the electric circuit through the signal. These devices are arranged on suitable bed-plates 4 secured to rail 1, and each of said devices is provided with a movable actuating lever 5 which is operated by a flange on the car wheels. The levers 5 pivotally engage the bed-plate 4 at 6 and said levers are normally held in vertical position by means of the springs 7. Pre-

suming that a train is moving from left to right in Fig. 1, the lever 5, in the circuit closing device, arranged on the left hand end of said figure, is moved toward the right. The movement of said lever moves the sliding-plate 10 toward the right, through the connecting rod 11. The plate 10 is mounted on a guideway 12 and said plate is held in position on said guideway by means of a screw 13 passing through the slot 14, in plate 10. It will be noted that the plate 10 has a lateral extension 15, and the sides of said extension are cut on an incline, as shown, so that when the plate 10 is moved toward the right the adjacent inclined edge of said plate will engage the pivoted arm 18, causing said arm to be moved from an inclined position, shown in Fig. 4, into a vertical position, shown by the dotted lines in Fig. 4, and against the core of a magnet 20, which is grounded through wire 21. The lever 18 is the armature of the magnet 20, and when this lever is in the position shown in full lines in Fig. 4, it is without the influence of its magnet, but when it is shifted against the magnet core by the plate 15, as described, it is held in such position by the magnet until the circuit of the latter is broken. The arm 18 is connected with the main feed-wire 22 through the wires 23 and 24; the wire 23 connecting with one of the terminals of the magnets in the bell 26 and the wire 24 connecting with the other terminal of the magnets of said bell and with the main feed-wire 22. Interposed in the line of the wire 24 is a series of lamps 25 whereby the proper resistance is secured, these lights, when lighted, serving an additional purpose by providing a signal at night.

As heretofore mentioned, when the plate 10 is moved to the right, forcing the arm 18 into engagement with the core of the magnet 20, the circuit in wires 24, 23 and 21 is closed, causing the bell to ring and the lights 25 to be lighted, so that a double warning is given at the crossing. The bell continues to ring and the lights to burn until the train reaches the crossing when the circuit is broken by the flanges of the car wheels coming into engagement and actuating the operating lever 30, in the circuit

breaker device. The circuit breaker device consists of a base 34, similar to base-plate 4, and is similarly attached to rail 1. The lever 30 is similar to the lever 5, and when actuated imparts a sliding movement to the movable block 35, the latter being held in position on the base-plate 34 by means of the screw 36 passing through the slot 37 in the block 35. The block 35 is provided with a metallic plate 38 which makes engagement with the wire 39 that leads to and connects with the coil of magnet 20, the other end of the wire of said magnet being grounded through the wire 40. The plate 38 normally stands in engagement with a fixed plate 42 which makes connection with the magnet 20, through the wire 44, located on the other side of the crossing at the right hand end of Fig. 1, and this magnet 20, in the device on the right hand side of the crossing, is grounded through the wire 45. Thus it will be seen that the magnet circuit, including the ground wires 40 and 45 and the wires 39 and 44, is normally a closed circuit unless broken by shifting the block 35 so as to remove the metallic-plate 38 from beneath the stationary-plate 42. This circuit however is only broken momentarily, during which time the magnets 20 are demagnetized, thereby allowing the arms 18 to drop by gravity, from their position shown, by means of the dotted lines to the position shown by full lines in Fig. 4. The magnet circuit connects with the main feed wire 22 by means of the wire 47. As the flanges of the wheels pass the lever 30 on the circuit breaker device, said lever immediately assumes its normal vertical position, by means of the springs 31, so that the plate 38 is moved to again contact the stationary-plate 42, thereby again closing the circuit through the magnets 20. As the train proceeds, after passing the crossing, and comes into contact with the lever 5 of the circuit device located on the right hand end of said figure said lever is actuated, but the signal circuit is not closed, this device being capable of only closing the signal circuit when a train is approaching from the other direction, from right to left. When a train moves from right to left the closing device on the left hand end of Fig. 1 is not actuated to close the signal circuit. The circuit closing device on the right hand end of Fig. 1 embodies the same mechanism as the one at the left except that said mechanism is mounted so as to stand in a reverse direction. The arm 18 in the circuit closing device on the right of Fig. 1 connects with the magnets of the bell 26 by means of a wire 23 and the core of the magnet is grounded through the wire 21. The devices for closing the signal circuit on both sides of the crossing and the device located at the cross-

ing for breaking the magnet circuit are suitably inclosed by means of a cover whereby foreign matter is excluded from reaching the inner mechanism. The levers 5 and 30 pass through suitable slots 51 in the covers and these slots are kept closed by means of sliding-plates 52 which move with the levers.

While we have described the devices as being located to protect a highway crossing, it will be noted that the same system can be placed into operation on each side of a station or at each end of a tunnel so as to give warning of trains approaching from either direction. It will also be noted that the apparatus is simple in construction, so that the cost of installation and maintenance is materially reduced.

Having thus fully described our said invention, what we desire to secure by Letters Patent, is—

1. A signal controlling device, comprising a normally open signal circuit, a magnet, an armature for said magnet normally without the attracting influence thereof, said armature constituting one of the terminals of the normally open signal circuit, means actuated by a passing train to move said armature within the influence of said magnet and to close said signal circuit, a normally closed circuit for said magnet, a circuit breaker arranged within the magnet circuit, means actuated by said train for operating said circuit breaker, a signal device in said signal circuit, and a feed wire for energizing said circuits.

2. A signal controlling device, comprising a normally open signal circuit, a magnet, an armature for said magnet normally without the attracting influence thereof, said armature constituting one of the terminals of the normally open signal circuit, a cam-plate actuated by a passing train to move said armature within the influence of said magnet and to close said signal circuit, a normally closed circuit for said magnet, a circuit breaker arranged within the magnet circuit, means actuated by said train for operating said circuit breaker, a signal device in said signal circuit, and a feed wire for energizing said circuits.

3. A signal controlling device, comprising a normally open signal circuit, a magnet, an armature for said magnet normally without the attracting influence thereof, said armature constituting one of the terminals of the normally open signal circuit, a cam-plate adapted to move said armature within the influence of said magnet and to close said signal circuit, an actuating lever actuated by a passing train to actuate the said cam-plate, means for normally holding said lever in vertical position, a normally closed circuit for said magnet, a circuit breaker ar-

ranged within the magnet circuit, means
actuated by said train for operating said
circuit breaker, a signal device in said sig-
nal circuit, and a feed wire for energizing
5 said circuits.

In witness whereof, we have hereunto set
our hands and seals at Indianapolis, Indi-

ana, this, 12th day of August, A. D. one
thousand nine hundred and eleven.

JOHN JENNINGS.

[L. s.]

WILLIAM H. JENNINGS.

[L. s.]

Witnesses:

F. W. WOERNER,

J. A. MINTURN.