R. B. CUNNINGHAM.

SWITCH SIGNAL.

APPLICATION FILED OCT. 8, 1908.

920,030. Patented Apr. 27, 1909.

Fig. 1.

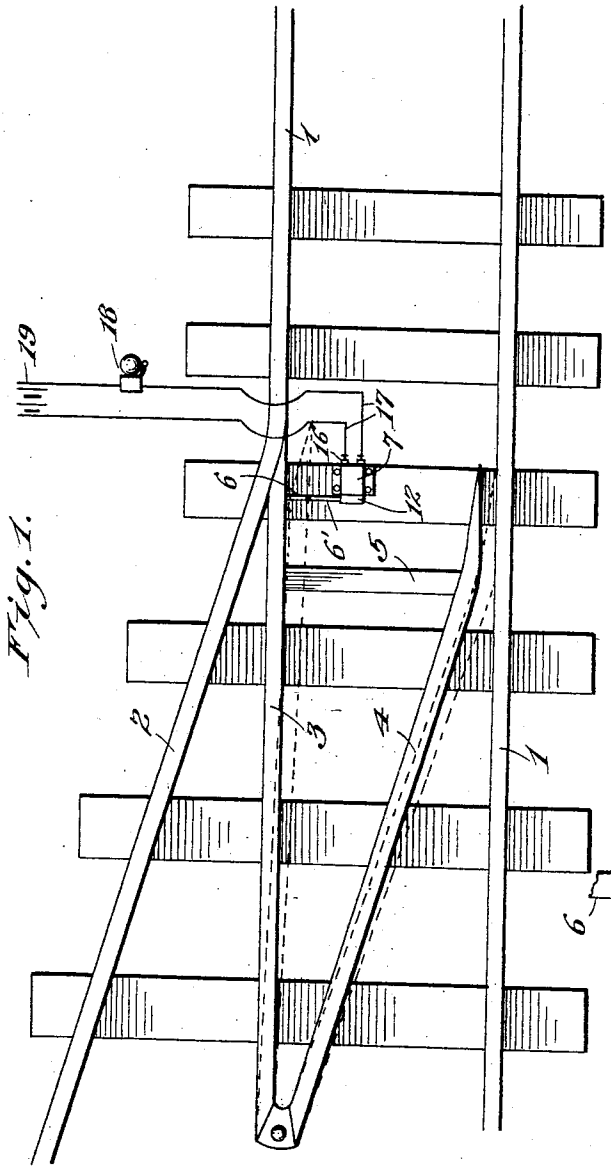


Fig. 3.

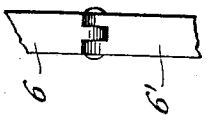
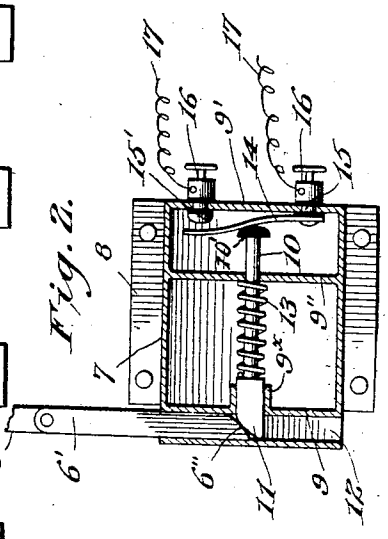


Fig. 2.



Witnesses

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SWITCH-SIGNAL.

No. 920,030. Specification of Letters Patent. Patented April 27, 1909.

Application filed October 8, 1908. Serial No. 456,786.

To all whom it may concern:

Be it known that I, ROY B. CUNNINGHAM, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Switch-Signals, of which the following is a specification.

My invention relates to railway switch signals, and particularly to that class of signals which indicate whether a switch is open or closed, the object of my invention being to provide a device which is adapted, when the switch to which it is attached is left open, to give an alarm, this alarm being preferably the ringing of a bell which shall continue until the switch is again closed.

The invention consists in the arrangement of parts and details of construction set forth in the accompanying specification and particularly stated in the appended claims.

In the drawings Figure 1 is a plan view of a section of track with my device applied thereto. Fig. 2, is an enlarged plan view partly in section of the signaling mechanism detached. Fig. 3, is a fragmental detail of the joint between the two sections of the signal rod.

In the drawings 1 indicates the rails of a section of track, 2 indicating one of the rails of the branch leading therefrom, and 3 and 4 two movable rails of the switch, the movable rail members or switch points 3 and 4 being connected at their rear ends or preferably formed integral as shown, the front end of the switch points being connected by the tie bar 5 so that the two points will move together to open or close the main line or the branch.

Attached to the switch points and preferably the point 3 is a signal rod formed in two sections 6, 6′, the section 6 is preferably attached to the base flange of the switch point 3, and at its free end has a jointed connection with the section 6′ whose extremity is wedge-shaped as at 6″.

7 designates a box or casing having vertical side walls, a top, and a base 8 adapted to be attached to a sleeper. This box is formed with the end walls 9, 9′ and the intermediate wall 9″. Supported in bearings in the intermediate wall 9″ and the wall 9 is a plunger 10, the outer end of which is formed with the wedge-shaped head or termination 11 square in section adapted to engage with the wedge-shaped terminal end 6″ of the rod 6′. The rod 6′ is at right angles to the plunger 10 and moves in a guide passage 12 formed on the end of the box or casing. Preferably the rod 6′ is square and the guide passage 12 is also square so that the rod 6′ cannot turn therein, but must move easily and smoothly backward and forward in the passage as the switch is thrown to one position or the other. In order that the plunger 10 shall not rotate either, I form a square opening in the rear wall through which the square head 11 of the plunger slides. In order to get a good bearing for this square head, I form flanges $9^{\times}$ on the box which project inwardly and surround the square head 11, thus holding it firmly and giving it a solid support for its movement, so that it may be accurately presented against the end of the rod 6′. When the rod 6′ is moved inward by the throwing of the switch to the dotted lines in Fig. 1, its wedge-like terminal contacts with the head 11 and forces up the plunger 10 against the resistance of a coil spring 13 which surrounds the plunger and bears at one end against the intermediate wall 9″.

The plunger 10 projects through the intermediate wall and bears against a resilient circuit closer 14 which is in the form of a flat spring, fast at one end to a contact post 15, which passes through the side of the box or casing. The other end of the resilient circuit closer is free, but is adapted to be forced inward by the inward movement of the plunger and into contact with the contact post 15′, likewise projecting through the end of the box. These contact posts are of course insulated from the box and are connected to binding posts 16 from which wires 17 are carried to a bell or other signal 18 and a battery 19 in circuit therewith. The inner end of the plunger 10 is of course insulated as at 10′ where it bears against the spring 14.

The operation of my device is obvious. When the switch point is in the position shown in full lines in Fig. 1, the rod 6′ is withdrawn from any wedging engagement with the plunger 10. When however the switch point is thrown to the position shown in dotted lines, opening the branch track, the rod 6′ is moved inward, wedging outward the plunger 10 which closes the circuit by means of the spring 13 and permitting the current to actuate the bell or other suitable signaling device. This signaling device is placed either within a signaling tower, in a watchman's shanty, or in any other desired location where its signal will

be heard. So long as the switch is thrown from the main line, so long the bell will sound.

It will be seen that the action of the rod 6′ upon the head 11 of the plunger is particularly positive for the reason that once the signal rod has been forced inward to its full extent, it will have forced the plunger outward and the plunger being held against the flat side of the rod beyond the lower edge of the wedge-shaped terminal cannot possibly be forced inward again until the switch is thrown back to its former position. Thus the plunger is locked when the switch is open to the siding.

The device is extremely simple, and particularly compact. All the parts are fully protected by the casing and there is no danger of ice or snow accumulating around the joints of the signal rod, so as to prevent its operation. Even if ice or snow should accumulate by chance within the guide passage 12, the wedge-shaped end of the rod 6′ would act to clean the passage and guide way of ice or snow that might accumulate therein. In the same way the two wedge-shaped faces of the plunger and rod acting against each other will tend to keep them clean so that a good wedging action may take place.

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

1. In a switch signal, a signal rod connected to the switch point to be moved by and with the same, a casing into which said rod extends, a longitudinally movable plunger in said casing adapted to be shifted when the rod is moved, separate contact posts, a resilient circuit closer attached to one of said posts and bearing against the end of the plunger normally out of contact with the other of said posts, but adapted to be forced into contact therewith upon the actuation of the plunger, and electrical connections from said contact posts to a signal.

2. In a switch signal, a signal rod connected to the switch point to be moved by and with the same and having at its outer end a wedge-shaped termination, a casing into which said rod enters, a longitudinally movable plunger arranged at right angles to said signal rod and having at one end a wedge-shaped termination adapted to be engaged by the wedge-shaped termination of the signal rod, separate contact posts, a resilient circuit closer attached to one of said posts and bearing against the end of the plunger and normally out of contact with the other of said posts but adapted to be forced into contact with the other of said posts upon the actuation of the plunger, and electrical connections from said contact posts to a signal.

3. In a switch signal, a signal rod connected to the switch point to be laterally shifted by the same and having a wedge-shaped termination, a casing having end walls and an intermediate wall, a plunger mounted in the rear and intermediate wall of the casing and having at one end a wedge-shaped termination projecting through the rear wall of said casing aad into contact with the wedge-shaped end of said rod, a spring for forcing said plunger outward, separate contact posts mounted in the front wall of the casing but insulated therefrom, a flat spring attached to one of said contact posts and bearing against the inner end of the plunger and out of contact with the other of said posts, and electrical connections from said contact posts to a signal.

4. In a switch signal, a signal rod connected to the switch point to be laterally shifted by and with the same, said rod having a wedge-shaped termination, a casing having a guide passage on its rear end into which said bar enters, front and rear walls formed on said casing, an intermediate wall therein, a plunger shiftably supported on the rear and the intermediate wall and having a wedge-shaped outer end, a spring for forcing said plunger rearward and into contact with the end of the signal rod, contact posts projecting through the front wall of the casing and having binding posts connected therewith, wires leading from said binding posts to a signal, and a spring attached to one of said contact posts normally bearing against the plunger but adapted to be forced by the plunger into contact with the other of said posts to complete the circuit.

5. In a switch signal, switch points connected at their rear ends and moved together, a signal rod made in two sections pivoted to each other and connected to the switch points, the outer end of the outer section being square in section and wedge-shaped at its extremity, a casing having a square guide passage formed on its rear end into which said rod projects, a plunger mounted in said casing having a square head with an inclined terminal face adapted to engage with the inclined end of the signal rod, a spring for forcing said plunger against the signal rod, binding posts located in the wall of said casing and having contact posts projecting into the casing, wires leading therefrom to suitable electrical signaling devices, and a resilient circuit closer attached at one end to one of said contact posts bearing normally against the end of said plunger and adapted to be forced against the other contact post when the plunger is shifted inward.

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

ROY B. CUNNINGHAM.

Witnesses:

JANET E. HOGAN,

HELEN F. LILLIS.