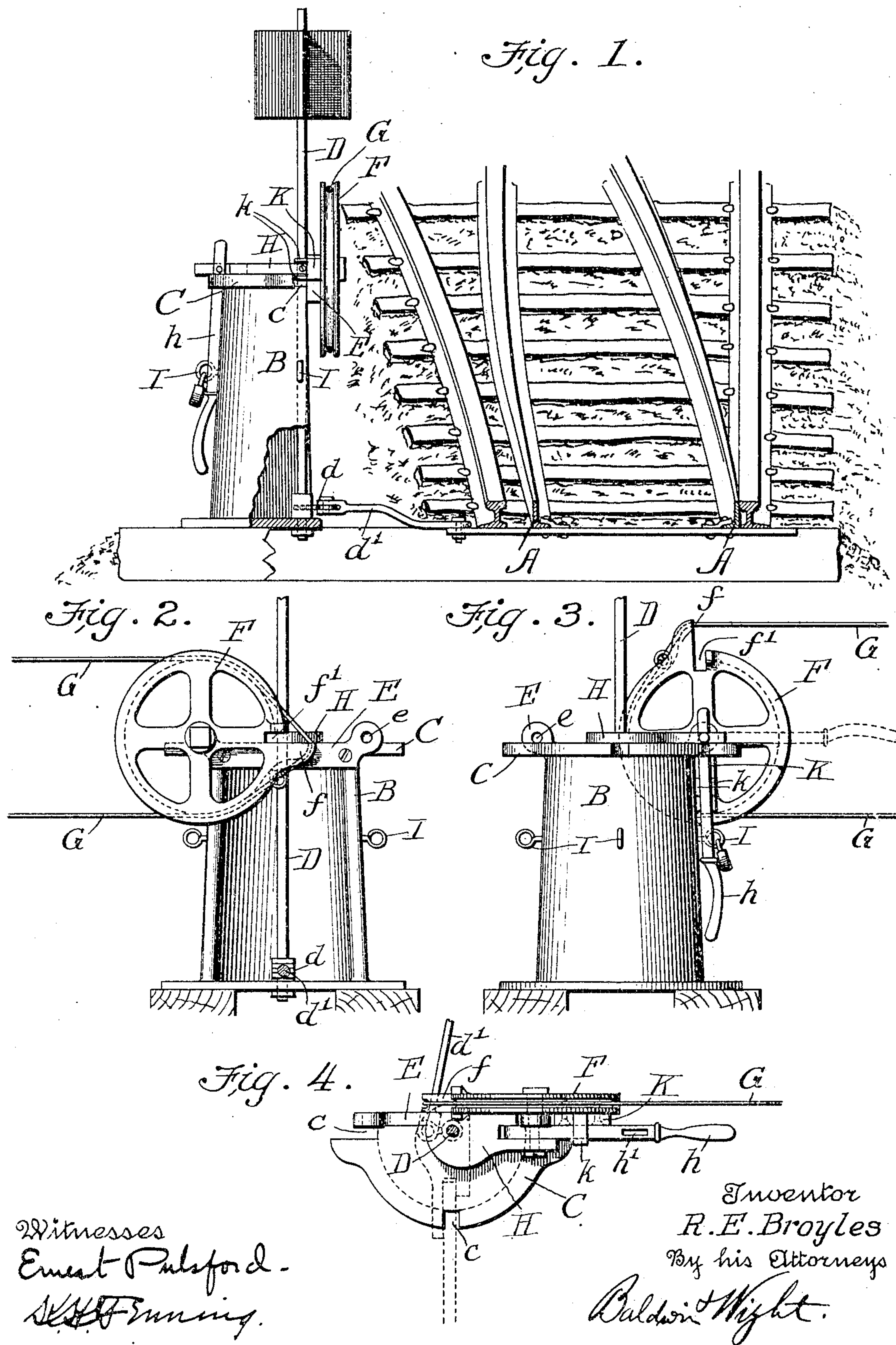


No. 788,018.

PATENTED APR. 25, 1905.

R. E. BROYLES.  
SWITCH STAND.

APPLICATION FILED SEPT. 29, 1904.





# UNITED STATES PATENT OFFICE.

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## SWITCH-STAND.

SPECIFICATION forming part of Letters Patent No. 788,018, dated April 25, 1905.

Application filed September 29, 1904. Serial No. 226,584.

*To all whom it may concern:*

Be it known that I, ROBERT E. BROYLES, a citizen of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Switch-Stands, of which the following is a specification.

My invention relates to that class of switch-stands which is adapted to operate simultaneously proximate switch-rails and a target and a distant signal, and has for its object to provide a simple, strong, and efficient device of this character. In such a device it is desirable that the interdependence of the switch-actuating device and the device for operating the distant signal be such as to make it impossible for the switch to be open when the signal is set at "safety." At the same time a combination of mechanism such that the danger-signal be displayed whenever the switch is open or is in the course of being opened or closed is requisite to a satisfactory device. The operating mechanism should be capable of being locked, so as to avoid being tampered with by unauthorized persons.

In carrying out my invention I provide a supporting-plate through which a target-rod passes perpendicularly and at one edge of which is mounted at either end a wheel which actuates mechanism for operating a distant signal. At its lower end the target-rod is adjustably attached to a rod for moving the switch-rails, and removably attached to the target-rod is an operating-lever, to which is hinged a lever-arm. By the movement of the operating-lever the target-rod may be rotated and through the adjustable connection the switch-rails operated. In the periphery of the supporting-plate are recesses into which the hinged lever-arm of the operating-lever is adapted to enter, and thus lock the switch from movement when in the open or closed position. The hinged lever-arm is provided with a device by which it may be locked to the support below any one of the recesses in the supporting-plate. On its side next the supporting-plate the signal-operating wheel is provided with means for engaging the hinged lever-arm when the switch is closed and when

this arm is depressed the wheel is so turned as to cause the safety-signal to be exhibited at the distant station, at which position it may be locked. To open the switch, it is necessary to raise the arm, thus setting the danger-signal at the distant station. The arm is then swung round ninety degrees and the switch thrown open, and during this movement of the arm the outer end of the operating-lever is thrown into a recess in the periphery of the signal-operating wheel, and thus the wheel is locked from movement while the danger-signal is set. Both sides of the supporting-plate are made alike and the operating-lever may be removed and inverted. The signal-operating wheel may be removed and mounted on the opposite end of the supporting-plate, which is symmetrical with respect to its middle point. Thus the same switch-stand may be used to operate a switch from either side of the track and to set a distant signal either before or behind the switch.

In the accompanying drawings, Figure 1 is a view, partly in section and partly in perspective, of a section of track with my switch-stand connected with the switch therein. Fig. 2 is a front elevation of the switch-stand, showing its position when the switch is open. Fig. 3 is a rear elevation of the switch-stand, showing its position when the switch is closed. Fig. 4 is a plan view of the device, showing its position when the switch is closed, the position of the operating-lever when the switch is open being shown in dotted lines.

Beside the track adjacent to the switch-rails A, on a suitable support B, is mounted a supporting-plate C, which is approximately semi-circular in plan and is cut away at about its center of curvature to admit of the passage vertically therethrough of a target-rod D. At each end of its diameter and at the middle of its curved periphery the plate C is cut away at *c*, for a purpose hereinafter explained. Fastened to the straight edge of this plate and serving to hold the target-rod in place is a plate E, having at each end and slightly above the plane of the supporting-plate C a hole *e*, in which is adapted to fit a screw-bolt, on which is revolubly mounted a wheel F, on



the circumference of which is mounted in a groove a wire G, which runs to and operates in a well-known manner a signal at a distance, of say, half a mile. The signal has only two readings, "danger" and "safety," and is so adjusted that it is moved from one position to the other by a quarter-turn of the wheel F. At one point of the circumference of this wheel is a projection  $f$ , adjacent to which is a slot  $f'$ , which engages the end of an operating-lever H, by which the wheel is locked from movement. The projection  $f$  is adapted to hold the wire G out from contact with the lever H when the latter is being moved into and out of engagement with the slot  $f'$ .

The operating-lever H is removably attached to the target-rod just above the supporting-plate C and is adapted to rotate the same. At the lower end of the target-rod is a screw-eye  $d$ , to which is attached a rod  $d'$ , which in turn is attached to the switch-rails A. It is obvious that when the target-rod is turned in one way the switch-rails will be drawn toward the switch-stand and the switch closed, while when the target-rod is rotated in the opposite direction the switch will be opened. It will be seen that if the screw-eye  $d$  is screwed into the target-rod the throw of the switch-rails will be lessened and the reverse. The screw-eye is so adjusted that the switch-rails will be thrown from one position to the other by a quarter-turn of the target-rod. Of course other devices for adjustably connecting the target-rod with the switch-rails may be employed.

Hinged to the operating-lever H is a lever arm or handle  $h$ , slotted at  $h'$  to engage one of the eyebolts I on the support B when the lever is turned down through one of the recesses  $c$  in the plate C when the switch is in the extreme open or closed position. A padlock may be passed through the outer end of the eyebolt I to secure the whole mechanism from movement.

Diametrically opposite the slot  $f'$  on the wheel F is a small block K, carrying on opposite sides stops  $k$ , between which the lever  $h$  extends when the switch is closed. By this arrangement the distant signal is held from accidental movement and may be set by raising or lowering the lever  $h$ .

When the distant signal is set at "safety" and the switch is closed, the stand is in the position shown in Fig. 3. To set the signal at "danger" and open the switch, the pad-

lock is removed from the eyebolt I and the lever-arm  $h$  is raised to the position shown by dotted lines. In so doing the wheel F, through the stops  $k$ , is given a quarter-turn, thereby changing the distant signal. The lever-arm and plate H are then turned to the position shown by dotted lines in Fig. 4. By this movement the target-rod is given a quarter-turn and the switch opened. At the same time the end of the plate H enters the recess  $f'$  in the wheel F and locks it from movement. The lever-arm  $h$  is then depressed and engages the middle eyebolt I, through which the padlock may be passed and the switch and signal again locked.

It will be seen that I have provided a mechanism by which a distant signal is set at "danger" at all times, excepting when the switch is closed, thus avoiding all danger of a train running into a partly or fully opened switch.

I claim as my invention—

1. The combination of a supporting-plate, a wheel, signal-operating means attached to the wheel, a target-rod, switch-operating means attached to the target-rod, an operating-lever attached to the target-rod adapted to engage a recess in and lock the wheel when the switch is open, a lever-arm pivotally connected with the operating-lever adapted to engage the wheel and revolve it when the switch is closed.

2. The combination of a supporting-plate, a wheel, signal-operating means attached to the wheel, a target-rod, switch-operating means attached to the target-rod, an operating-lever secured to the target-rod adapted to engage a recess in and lock the wheel when the switch is open, a lever-arm pivotally attached to the operating-lever adapted to engage the wheel and revolve it when the switch is closed, and means to lock the mechanism when the switch is in either position.

3. The combination of a supporting-plate having a recess for a target-rod, a vertical target-rod in the recess, a wheel revolvably mounted on the plate and carrying means for operating a distant signal, means connecting the target-rod and switch-rails adjustable so as to regulate the throw of the switch-rails, and means for rotating the target-rod and revolving the wheel and locking them.

In testimony whereof I have hereunto subscribed my name.

ROBT. E. BROYLES.

Witnesses:

P. J. CHAMBERS,  
I. A. HART.