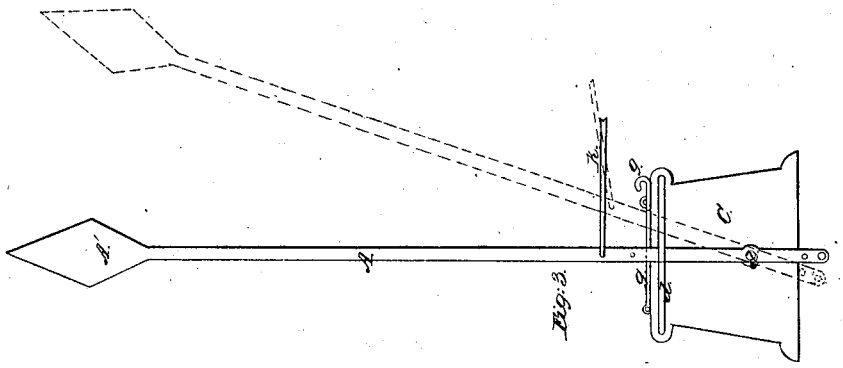
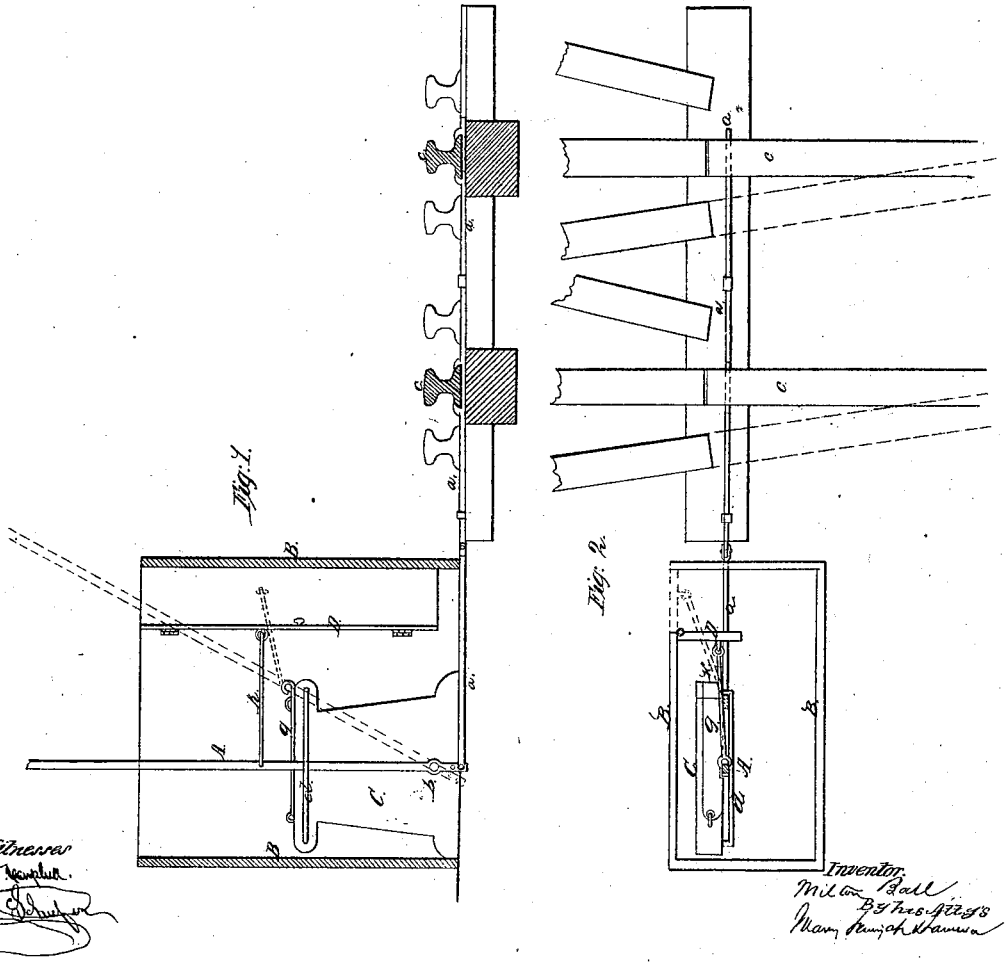
M. BALL.

RAILROAD SWITCH.

No. 48,640. Patented July 11, 1865.





UNITED STATES PATENT OFFICE.

MILTON BALL, OF CANTON, OHIO.

IMPROVEMENT IN RAILROAD-SWITCHES.

Specification forming part of Letters Patent No. **48,640**, dated July 11, 1865.

To all whom it may concern:

Be it known that I, MILTON BALL, of Canton, Stark county, State of Ohio, have invented a new and Improved Safety-Switch; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical section of a railroad-switch and switch-rails having my invention applied. Fig. 2 is a top view of Fig. 1. Fig. 3 shows a contrivance for operating switch-rails.

Similar letters of reference indicate corresponding parts in the several figures.

The object of my invention is to guard against accidents on railroads in consequence of carelessness on the part of switch-operators by so constructing a switch that in the act of opening it the operator will be confined to the spot, and cannot leave the switch without closing it again, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings I have represented my invention applied to the simplest form of switch, and to that form which is most generally in use on railroads.

The lever A is pivoted at *b* to a frame, C and this lever extends upward a suitable distance, and has a signal, A′, applied to its upper end, by which the engineer of an approaching train can ascertain the position of the switch-rails. The sliding rod *a* is suitably pivoted to the lower end of the lever A, and carried off to and connected to the switch-rails *c c*, as shown in Figs. 1 and 2, so that by vibrating the lever A the rails *c c* may be moved from one track to another as circumstances require. The lever A extends up through a staple, *d*, which keeps it in place against the vertical side of the frame C, and on top of this frame is a notched plate, *g*, which, when properly adjusted, will lock the lever A in the vertical position shown in Figs. 1, 2, and 3, in which position the switch-rails are closed with the main track; but when the lever A is moved to the position indicated in said figures by red lines the switch-rails will be open, or in a line with a branch track or "turn-out." When it is desired to move the lever A from its vertical position the locking-plate *g* is loosened and set back so as to free said lever from its notch.

Various contrivances may be adopted for locking lever A in its vertical position; or, if desirable, such contrivances may be dispensed with. I prefer, however, to employ some means for preventing accidental displacement of the switch.

Surrounding the mechanism for actuating the switch-rails is an inclosure, B, which is entered through a door, D. (Shown open in Figs. 1 and 2.) This door is connected by means of a rod, *k*, or in any other suitable manner, with the lever A, and it stands open when the lever A is in a vertical position and the switch is closed; but when the switch is open—*i.e.*, out of line with the main track—as indicated in red, Fig. 2, the door D will be closed.

Several entrances may be made in the inclosure B, provided all the doors thereof are connected, substantially as above described, to the switch-lever A. By thus surrounding the signal rod or lever A of a railroad-switch with an inclosure having one or more entrances which stand open while the switch is closed, but which are closed the moment the switch is open, the operator will be confined within the limits of said inclosure until he adjusts the switch-rails to the proper position.

The object of the locking-plate *g* is to prevent the operator from closing the door D in leaving the inclosure, or to prevent this door from being closed from any other cause when it is intended that it should remain open.

By my invention it will be seen that the attendant of a switch cannot leave it when it is not in the proper position, unless he does it intentionally by closing the door D upon leaving the inclosure.

In the above description I have described a mode of opening the switch in one direction only; but it is obvious that the same principle may be adopted for opening the switch in both directions, or so as to bring the switch-rails in a line with two tracks branching off from the main track.

If desirable, two doors may be connected together in such manner that when the switch-lever is moved on one side one door or portion of a door will close the entrance, and when

it is moved on the opposite side the other door or portion of a door will close the entrance, both doors standing open when the switch is closed. Such a door would be constructed somewhat like a "turn-stile."

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

1. So constructing a railroad-switch that when the operator opens it he will be unable to leave it without closing it again, substantially as described.

2. Surrounding a railroad-switch with an inclosure having one or more entrances which stand open while the switch is closed, but which are closed in the act of opening the switch, substantially as described.

MILTON BALL.

Witnesses:
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