# A. MIDDLETON.

## Railroad-Switch Operating Mechanism.

**No. 219,288.** **Patented Sept. 2, 1879.**

FIG. 1.

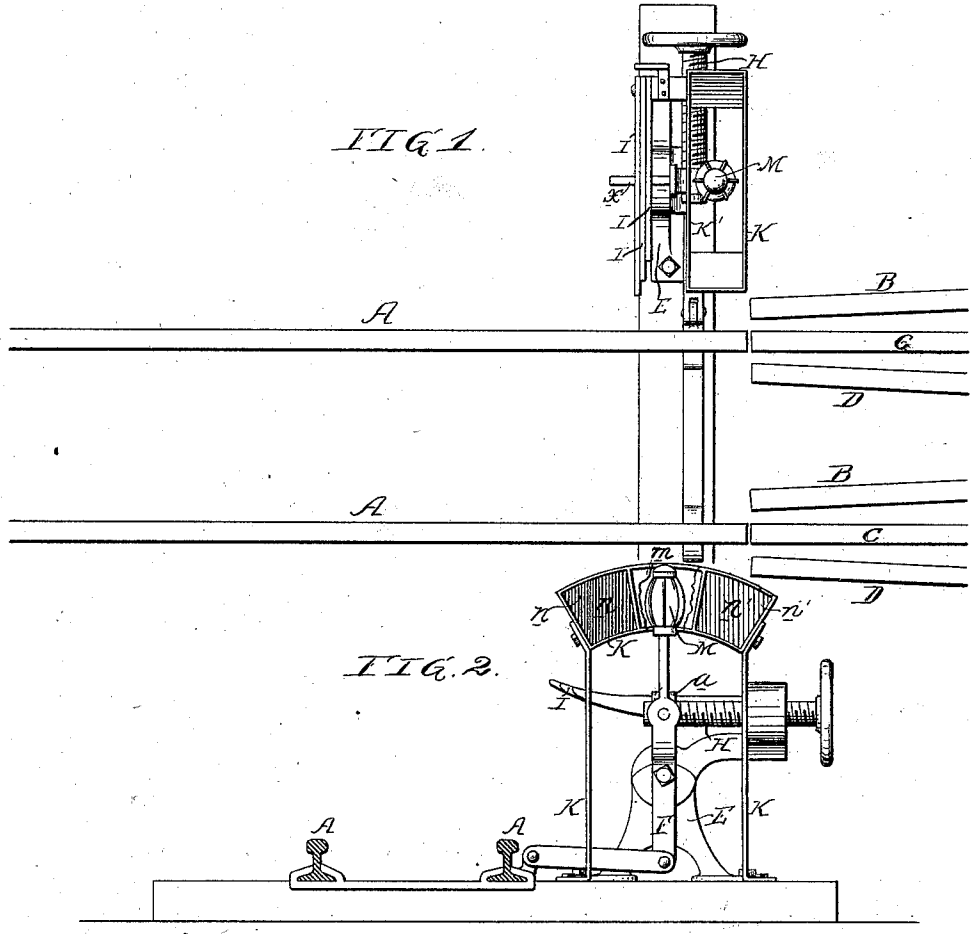



FIG. 2.




FIG. 3.

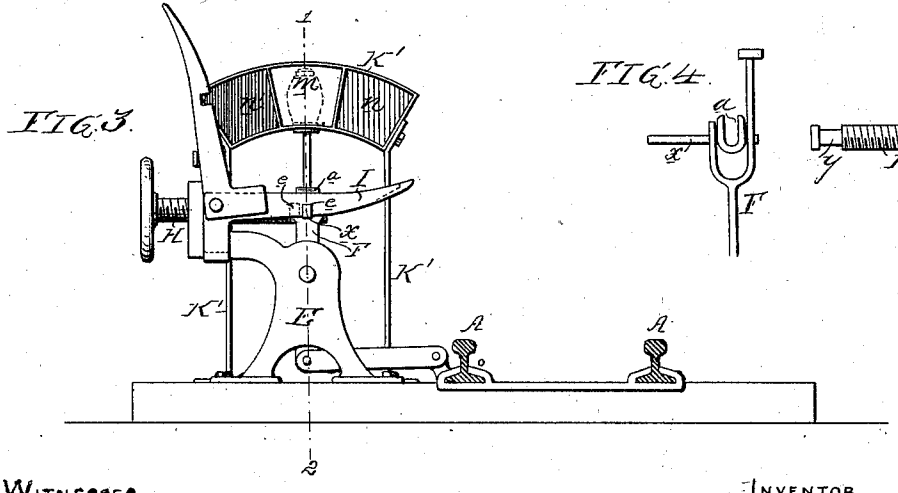



FIG. 4.




WITNESSES.

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# UNITED STATES PATENT OFFICE.

ALLEN MIDDLETON, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN RAILROAD-SWITCH-OPERATING MECHANISMS.

Specification forming part of Letters Patent No. **219,288**, dated September 2, 1879; application filed December 7, 1878.

*To all whom it may concern:*

Be it known that I, ALLEN MIDDLETON, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Railroad-Switch-Operating Mechanisms, of which the following is a specification.

The objects of my invention are, first, to combine a switch with a screw-spindle, which serves the twofold purpose of adjusting the said switch and locking the same after adjustment; second, to so combine this switch-operating screw with stopping devices that, by the aid of the latter, the proper adjustment of the switch by the screw is assured; and, third, to combine with the switch-operating mechanism certain signaling devices, described hereinafter, to indicate to an engineer whose locomotive may be traversing either of the tracks to which the switch can be adjusted the condition of the switch in relation to the said track.

In the accompanying drawings, Figure 1 is a plan view of my improved switch-operating mechanism; Fig. 2, a side view; Fig. 3, a view the reverse of that shown in Fig. 2; and Fig. 4, a view showing the detailed construction of part of the switch-operating mechanism.

A A are the switch-rails, which can be adjusted to coincide with either of the three tracks B B, C C, or D D.

To a suitable foundation on one side of the track, and near the outer ends of the switch-rails, is secured a standard, E, to which is pivoted a lever, F, the lower arm of the latter being connected to the said switch-rails.

To the upper arm of the lever F is pivoted a slotted swivel, *a*, in which the grooved end *y* of a screw-spindle, H, fits freely, the thread of the screw being adapted to an internal thread in a projection on the standard E; or the screw may pass through a swivel pivoted to the said standard.

On the back of the lever F, at the upper end of the same, there is a projecting pin, *x*, and to the standard E are loosely pivoted three arms, I, which are self-retaining in an elevated position, and each of which has a notch, *e*, adapted to the projecting pin *x*, the notches in the three arms being differently situated in respect to a vertical line, 1 2, drawn through the center of the pivot of the lever F.

The notch of the middle arm, I, for instance, is so situated that when depressed, as in Fig. 3, and the pin *x* is in the notch of the said arm, the lever F will be in a vertical position, and the switch-rails will coincide with the middle track, C C.

In like manner another arm, when depressed, (the others being elevated,) arrests the lever when the switch-rails coincide with the track B B, and a third arm will perform the same duty when the switch-rails coincide with the track D D.

It should be understood, however, that these arms, which are comparatively light affairs, are not for the purpose of retaining the switch-rails in the proper position to which they have been adjusted, but are simply stops to arrest the screw when the switch-rails have reached one of the three positions determined upon by the switch-tender, the screw itself serving as a means of locking the switch-rails in the position to which they have been adjusted.

A single arm, I, with three notches, will serve as a stop for the lever F in either of its three positions; but it would not be as convenient as the three arms, for the switch-tender, in adjusting the switch, can elevate all but the arm which has to determine the proper adjustment and proceed to operate the screw-spindle without interruption until the notch of the depressed arm arrests the lever F.

At one side of the standard E are erected two frames, K K′, containing panes of glass, three in the present instance, *m*, *n*, and *n′*, in each frame, to accord with the three tracks, to either of which the switch may be adjusted.

The panes of each frame are of different colored glass, the middle pane, for instance, being white, that to the left in Fig. 2 green, and that to the right red.

To a vertical continuation of the lever F is secured a lantern, M, situated between the frames. The lantern, as shown in Fig. 2, is directly opposite the white glass of both frames, so that the engineer of a locomotive traversing the middle track, C C, can be made aware in the dark of the fact that the switch is in a proper position to enable him to pursue his course with safety, the illumination of the green pane *n* showing that the switch has been set

to coincide with the track B B, and the illumination of the pane *n'* that the switch coincides with the track D D.

The device also serves to assure the engineer whose locomotive is traversing the line of which the switch-rails form a continuation the position of the said rails in relation to the tracks B B, C C, and D D.

It will be understood that there may be but two tracks, or more than three tracks, to which the switch-rails may be adjusted, and that there should be as many arms I and as many panes of glass in the frame K as there are tracks.

I claim as my invention—

1. The combination of the switch-rails A, the lever F, connected to the said rails and having a nut or swivel, *a*, and the screw-spindle H, adapted to a bearing in the standard E and to the nut or swivel *a*, all substantially as set forth.

2. The combination of the switch-operating mechanism, consisting of the screw-spindle H and lever F, having a projection, *x*, with a notched lever or levers, I, as described.

3. The combination of the switch-operating lever F, the lantern M, carried thereby, and a frame or frames, K, arranged adjacent to the lantern, and having as many panes of glass of different colors as there are tracks to which the switch may be adjusted, all substantially as set forth.

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

ALLEN MIDDLETON.

Witnesses:
ALEX. PATTERSON,
HARRY SMITH.