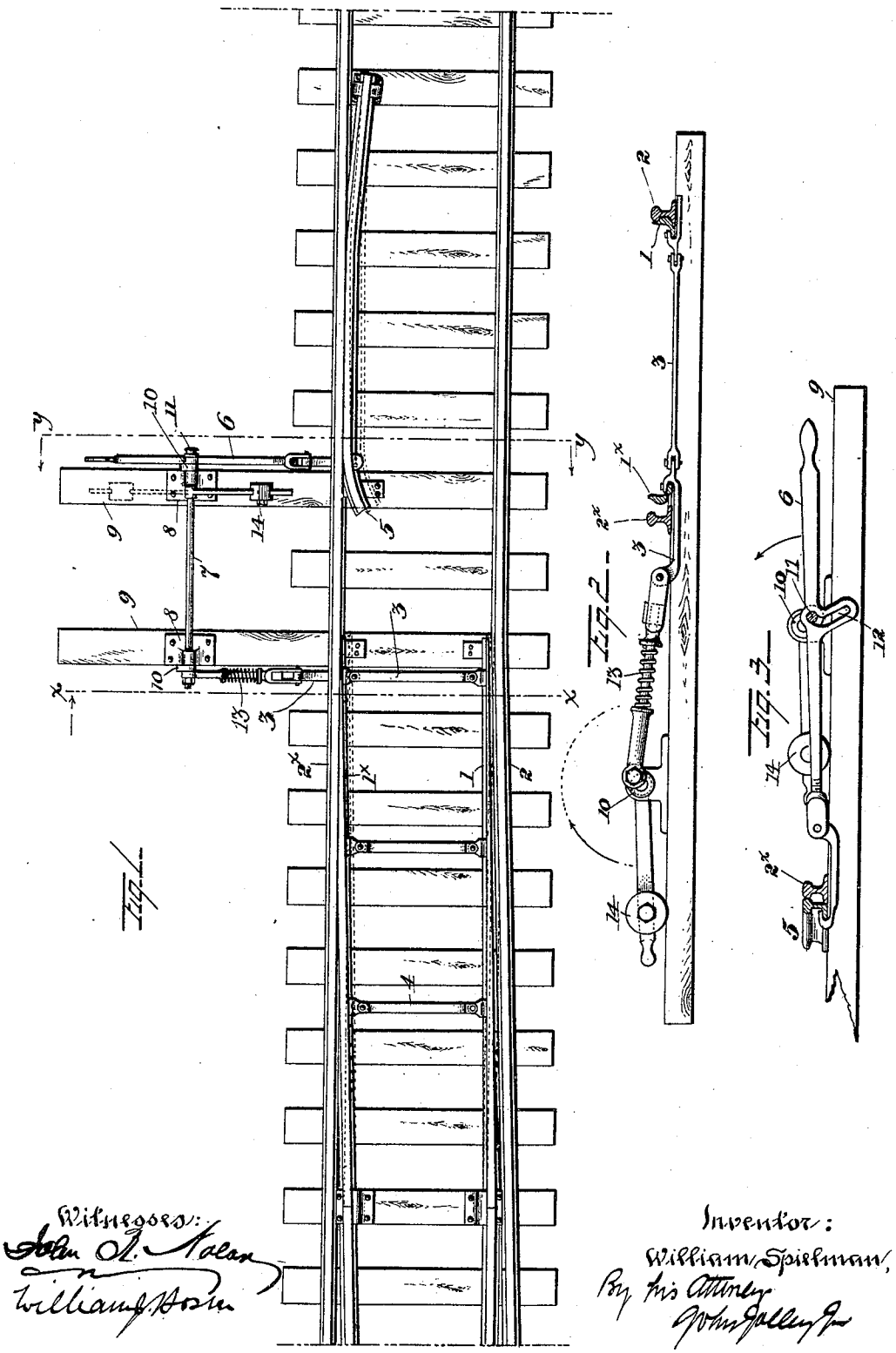
(No Model.)

W. SPIELMAN.

AUTOMATIC RAILROAD SWITCH.

No. 481,248. Patented Aug. 23, 1892.



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AUTOMATIC RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 481,248, dated August 23, 1892.

Application filed April 14, 1891. Serial No. 388,910. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SPIELMAN, of the city and county of Camden, State of New Jersey, have invented certain new and useful Improvements in Automatic Railroad-Switches, of which the following is a specification.

I will describe a railroad-switch embodying my invention in detail and then point out the novel features in claims, the object of my invention being to provide an automatically-operating switch such that, notwithstanding the position of the point-rails or whether the train is moving in either direction on the main line or on the branch line toward and onto the main line, the train will pass the switch safely and continue along the main line, suitable connecting means between the branch or point rails and guard-rails being employed to lock the point-rails to the main rails for the passing of the train from the main line onto the branch line.

In the accompanying drawings, which illustrate my invention, Figure 1 is a top plan view of a railway-switch embodying my invention. Fig. 2 is a transverse sectional view of a switch embodying my invention, representing the weighted switch-lever swung away from the track and the parts in the position indicated by dotted lines in Fig. 1. Fig. 3 is a similiar view taken on the line *y y*, Fig. 1, looking in the direction indicated by arrows illustrating the construction of the slotted switch-lever and connection of the several parts.

Referring to the drawings, 1 $1^{\times}$ designate the switch-points. These switch-points may be of the usual construction to operate in conjunction with the main rails 2 $2^{\times}$ and are connected together by the switch-rod 3 and tie-rods 4.

5 designates a movable guard-rail adjacent to the switch and forming an operative portion thereof in the manner hereinafter more fully described. This guard-rail is pivoted at one end in the usual manner and its other end is attached to what I term a "locking switch-lever" 6.

7 designates a shaft journaled in bearings 8 on suitable supports 9 to one side of the main-line rails. Cam-heads 10 are mounted on the respective ends of the shafts 7, and the switch-rod 3 is mounted to one of them, while the other is provided with a pin or stud 11, which works in a cam-slot 12 of the locking switch-lever 6. The slot 12 in the lever 6 is given its preferred cam shape, shown to admit of sufficient play of the guard-rail 5 away from the main track to be operated by and permit the passing of the flange of a car-wheel, and also when the lever is elevated or raised the extent of its slot by a switchman or train-attendant to move the guard-rail 5 away from the main rail $2^{\times}$ and prevent any action or operation of parts by the flange of a passing wheel between the guard-rail and the main rail, and being so held further prevents the rotation of the shaft 7, thus locking the point-rails with the main rails for switching the train onto the branch line, the weighted switch-lever 14, mounted on said shaft 7, having been first swung toward the main line, as shown in Fig. 1, which action causes the point-rails to make a proper connection with the main line for such switching, all as indicated in full lines in Fig. 1—that is to say, should the weighted lever 14 occupy a position away from the main line, (shown in dotted lines, Fig. 1,) thus causing the point-rails to occupy the position shown in dotted lines, Fig. 1, and in full lines in Fig. 2, which would provide a continuous main line, it would be necessary for the switchman or train-attendant to first throw the weighted switch-lever 14 toward the main line, which would rotate the shaft 7, and, as stated, by reason of the cam-head 10 on shaft 7 connection with the switch-rod 3 and the latter with the point-rails cause the point-rails $1^{\times}$ to assume a position in close contact with the main rail $2^{\times}$ in a manner to switch a train from the main line onto the branch line, as shown and stated, a spring 13 on said rod 3, when the weighted lever 14 is thrown away from the main line, acting normally to hold the switch open for trains passing in either direction on the main line (shown in dotted lines in Fig. 1 and illustrated in Fig. 2) and at the same time permits the safe passing of a train from the branch line onto the main line. In the latter instance the flange of the car-wheels would

pass between the point-rail 1 and main rail 2 and push the point-rail $1^{\times}$ into contact with the main rail $2^{\times}$, thus forming the proper connection between the point and the main rails, and after the train had passed would again open the switch to provide a continuous main line for trains traveling in either direction thereon. The weighted switch-lever 14 further serves when the switch is misplaced for a train continuing on the main line in either direction to automatically throw the switch open by the passing of the flange of the car-wheel between the guard-rail 5 and the main rail $2^{\times}$ when the train is passing in one direction and between the point-rail $1^{\times}$ and the main rail $2^{\times}$ when the train is passing in the other direction, and this by reason of the connection shown and described of the slotted lever 6 with the guard-rail 5 and shaft 7 in the first instance and the switch-rod 3 with the point-rails 1 $1^{\times}$ and shaft 7 in the second instance operating to rotate the shaft and automatically throw the weighted lever 14 away from or toward the main rails, according to the direction of travel of the train.

From the foregoing description it will be understood that it is immaterial what may be the position of the point-rails with respect to the main line that a train traveling in one direction on the main line or in the same direction on the branch line onto the main line or in the opposite direction on the main line will pass the switch safely and continue along the main line, for the reason that should the switch be misplaced it will be operated or opened by the flange of the passing car-wheel between the main track and the point-rails when the train is going in one direction and between the main track and the guard-rail when the train is going in the opposite direction, thus providing a safe automatically-operating switch for trains traveling in either direction on the main line or from the branch line onto the main line, it only being possible to switch the train from the main line onto the branch line by a switchman or train-attendant first throwing the weighted lever toward the main line to properly set the point-rails with the main rails for such switching and then lifting the switch-lever 6, which moves the guard-rail away from the main rail and clear of the wheels of the passing train.

I desire it understood that I do not wish to restrict myself to the exact construction of parts shown and described, but may vary the same in any manner to better carry out the principle of my invention without departing from the true scope thereof.

I claim—

1. In an automatic railroad-switch, the combination, with the main rails, of a pair of point-rails, a movable guard-rail normally operative to provide a continuous main line connected to a shaft suitably journaled adjacent to said main rails, a switch-rod mounted on said shaft and connected to the point-rails, a spring on said rod, and a weighted switch-lever on said shaft to retain said rails in normally operative combination with the main rails in the manner described, whereby a misplaced switch will be automatically opened by the operation of the mechanism described upon the passing of the flange of a car-wheel between the point-rails and main rails when the train is traveling in one direction and between the guard-rail and main rail when the train is traveling in the opposite direction, as set forth.

2. In an automatic railroad-switch, the combination, with the main rails, of a pair of point-rails, a movable guard-rail normally operative to provide a continuous main line connected to a shaft suitably journaled adjacent to said main rails, a switch-rod mounted on said shaft and connected to the point-rails, a spring on said rod, and a weighted switch-lever on said shaft to retain said rails in normally operative combination with the main rails in the manner described, whereby a misplaced switch will be automatically opened by the operation of the mechanism described upon the passing of the flange of a car-wheel between the point-rails and main rails when the train is traveling in one direction and between the guard-rail and main rail when the train is traveling in the opposite direction, and a second switch-lever mounted on said shaft, attached to the movable guard-rail and adapted to move said guard-rail away from the main rail and free of passing car-wheels to permit the switching of a train from the main line onto a branch line, as described.

3. In an automatic railroad-switch, the combination, with the main rails and point-rails, of a movable guard-rail, a shaft suitably journaled adjacent to said main rails and switch-rod connection between said shaft and point-rails, and a slotted switch-lever attached to said guard-rail, mounted on said shaft and working thereon by means of said slot, said guard-rail normally operative to provide a continuous main track in the manner described and adapted to be moved apart from said main rails free of passing car-wheels by the raising of said lever to permit the switching of a train from the main line onto a branch line, as described.

In testimony whereof I have hereunto signed my name this 25th day of March, A. D. 1891.

WILLIAM SPIELMAN.

In presence of—

FRANCIS E. BUCHER,

JOHN JOLLEY, Jr.