

No. 647,885.

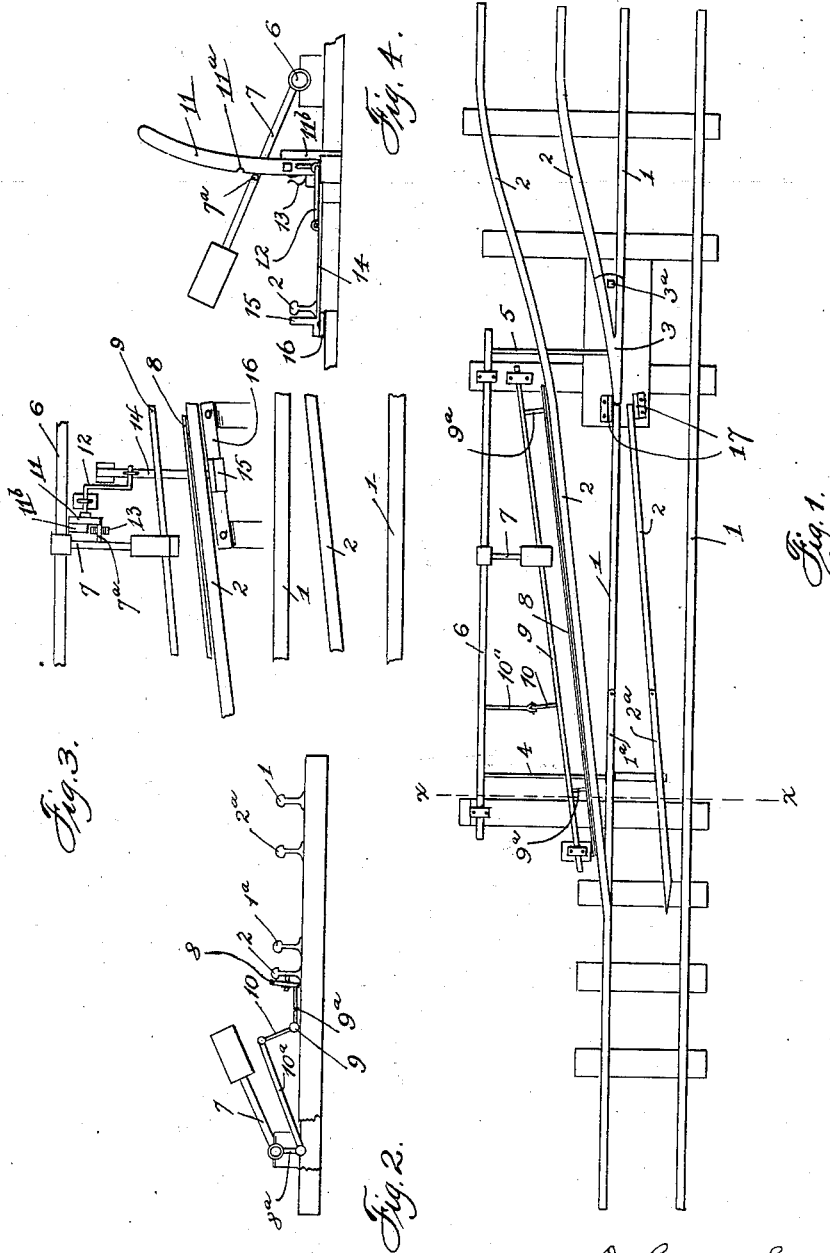
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D. C. SMITH & J. CHAPMAN.

AUTOMATIC SWITCH.

(Application filed Dec. 28, 1899.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

DON CARLOS SMITH AND JAYWEST CHAPMAN, OF COLUMBUS, OHIO.

AUTOMATIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 647,885, dated April 17, 1900.

Application filed December 28, 1899. Serial No. 741,834. (No model.)

To all whom it may concern:

Be it known that we, DON CARLOS SMITH and JAYWEST CHAPMAN, citizens of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Automatic Switches; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

One object of this invention is to do away with spring-rails, stationary frogs, and guard-rails, and therefore to obviate the dangers incident thereto.

Another object is to lighten the labor of the brakeman in setting switches and to save the loss of time involved in going back to close the switch after the train has passed into the siding.

A further object is to provide a solid and practically-uniform track along the main road and siding.

Heretofore in practice where spring-rails have not been employed a lap-rail to bridge the main rail was used. This has proved dangerous and expensive, and spring-rails, which are at present generally used, are quite dangerous and liable to derangement.

Our invention therefore consists of a frog having rail sections or sides of the normal size and form of rail that is pivoted in the angle between the main rail and the siding, rail, with switching points or rails that are pivoted at the ends of stationary parts of the main and siding rails, combined with means for simultaneously operating said frog and switching-rails to form a practically-uniform track, whether it be into the siding or along the main road.

Our invention also includes improved means for holding the switching-rails and frog open until the cars have run off the same.

A further detail of our improvements consists in means for automatically releasing the switching-lever after it has been moved to and latched in the switch-setting position.

The invention also consists in other details, as pointed out in the claims.

In the annexed drawings, Figure 1 is a plan view of the apparatus. Fig. 2 is a vertical sectional view taken on the line *xx* to illus-

trate the connection between the retaining-bar and the switch-actuating rock-shaft. Fig. 3 is a detail plan view showing the detent for the weighted lever and means for tripping the same. Fig. 4 is a side elevation showing the apparatus referred to in Fig. 3.

In the several views, 1 designates the stationary rails of the main track. 2 designates the stationary rails of the siding. 1^a and 2^a designate the main and siding switching-rails, respectively, that are pivoted near the ends of the stubbed stationary parts of the main and siding rails. 3 designates a frog pivoted at 3^a, one side of which forms a part of the main track and the other side of which forms a part of an adjoining siding-rail. The sides of the frog are joined and terminate in a stub-point that is swung to stand opposite the stub ends of the sections of the main and siding rails. 6 designates a rock-shaft journaled parallel to the main track. This shaft has fixed to it several downwardly-extending arms like that designated at 8^a, Fig. 2, and the two switching rails or tongues 1^a and 2^a are connected to be moved together by a rod 4, attached to one of these arms 8^a, while the frog 3 is connected by a rod 5 with a similar arm. These parts are so formed and connected that the switch rail or tongue 1^a and the main-rail side of the frog 3 may be drawn into line with the fixed rails of the main track to form a clear and unobstructed main road, and the said switching-rail and frog are normally held in this position by a weighted arm 7 on the rock-shaft 6; but the switch-rail 2^a and the siding edge of the frog 3 may be thrown into line with the fixed rails of the siding by lifting said weighted arm 7. This arm 7 is provided with a pin 7^a, that engages a notch 11^a in a detent-lever 11, pivoted to a standard 11^b, adjacent the arm 7. The upper portion of this detent-lever 11 is held normally against the pin 7^a by a bent crank-rod 12, the vertical end of which engages the lower arm of the lever and the horizontal end of which is fastened to a bar 14, extending to the siding-rail. On the end of this bar 14 near the track is a small block 15, adapted to be depressed by the wheels of the cars, and when so depressed the crank-rod 12 throws the lever 11 from the pin 7^a, and if said pin be in the notch 11^a releases said pin, whereupon the lever falls or tends to fall.

We have shown a spring-bar 16 secured between the ties under the block 15 to serve as a brace for the block; but this is not necessary if the arm 14 be sufficiently strong and well secured at its outer end.

Alongside the siding-rail 2 and parallel thereto is placed what we call the "retaining-bar" 8. This bar is secured to the rail, so as to be capable of vertical movement with respect thereto, and in the normal position of this bar its upper edge lies slightly above the top of the rail, so that if a car passes over the rail it will depress the bar. Arranged parallel to this bar 8 is a rock-shaft 9, having arms 9^a, that engage the bar, so that if the bar be depressed the shaft will be partially rotated in its bearings. The rock-shaft 9 also has fixed to it an arm 10, and a link 10^a connects the end of this arm 10 with one of the arms 8^a. From this connection of the bar 8 with the shaft 6 it will be observed that if the bar 8 be depressed the shaft rotates in a direction to lift the weight, and therefore to move the rail 2^a and frog 3 to open the siding.

When the train is to enter the siding, the brakeman runs ahead and lifts the weighted lever and if the apparatus is equipped with the detent-lever and its appurtenances latches the lever in its raised position. As soon as the train runs onto the retaining-bar the switch is held open until all the cars have passed the point of the frog 3. When the wheels strike the block 15 and depress it, the detent-lever 11 is thrown and disengaged from the pin 7^a; but the weight cannot drop its full drop and restore the rails to their normal position until all the cars have run off the retaining-bar 8. In coming out of the siding the flanges of the car-wheels first spread the frog 3, and when the wheels run onto the bar 8 the switch-point, as well as the frog 3, will be thrown into the open position.

To prevent the frog and switch-rails from being jolted out of place when the main track

is open, we provide a spring-clip 13, into which the pin 7^a on the weight-arm 7 passes when the rails and frog 3 are in their proper position.

Small blocks or guards 17, secured next the ends of the rails opposite the point of the frog 3, will protect those ends and the point of the frog against crushing under the wheels.

We do not of course confine ourselves to the precise form of the parts shown, as they may be modified to some extent without departing from the scope of our improvements.

What we claim, and desire to secure by Letters Patent, is—

1. In a railroad, the combination of the movable switch-rails, the movable frog, means whereby the same may be moved simultaneously to open the siding or open the main track, means for holding them normally in the open main-track position, and the retaining-bar 8, connected with the means for operating the switch-rails and frog adapted to be depressed by the cars to hold said frog and switch-rails in the position of open siding, substantially as described.

2. In a railroad, the combination of movable switch-rails, a movable frog, means for yieldingly holding them in a normal position, a detent for latching them when moved out of this normal position.

3. In a railroad, the combination of a movable switch-rail, a movable frog, means for yieldingly holding them in normal position, a detent for latching them when moved out of this position, and means to be operated by the train for automatically releasing said detent.

In testimony whereof we affix our signatures in presence of two witnesses.

DON CARLOS SMITH.
JAYWEST CHAPMAN.

Witnesses:

GEORGE M. FINCKEL,
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