2 Sheets—Sheet 1.

P. V. M. RAYMOND.

Railroad-Switch.

No. 211,670. Patented Jan. 28, 1879.

Fig. 1.

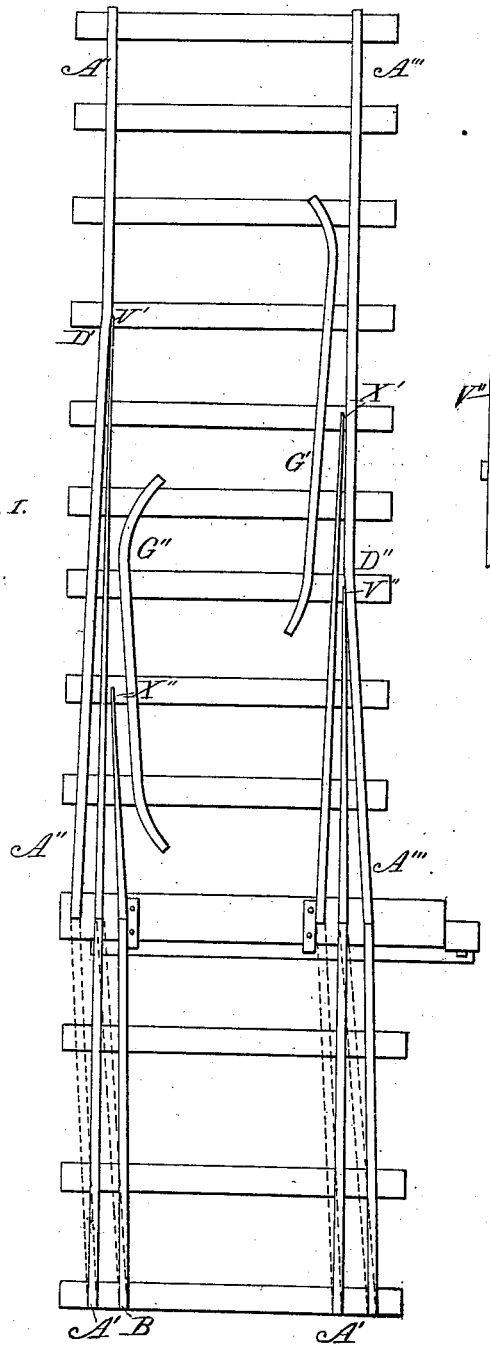
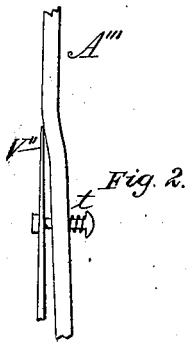


Fig. 2.



Attest:

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Inventor:

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by Ellis Spear

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2 Sheets—Sheet 2.

P. V. M. RAYMOND.

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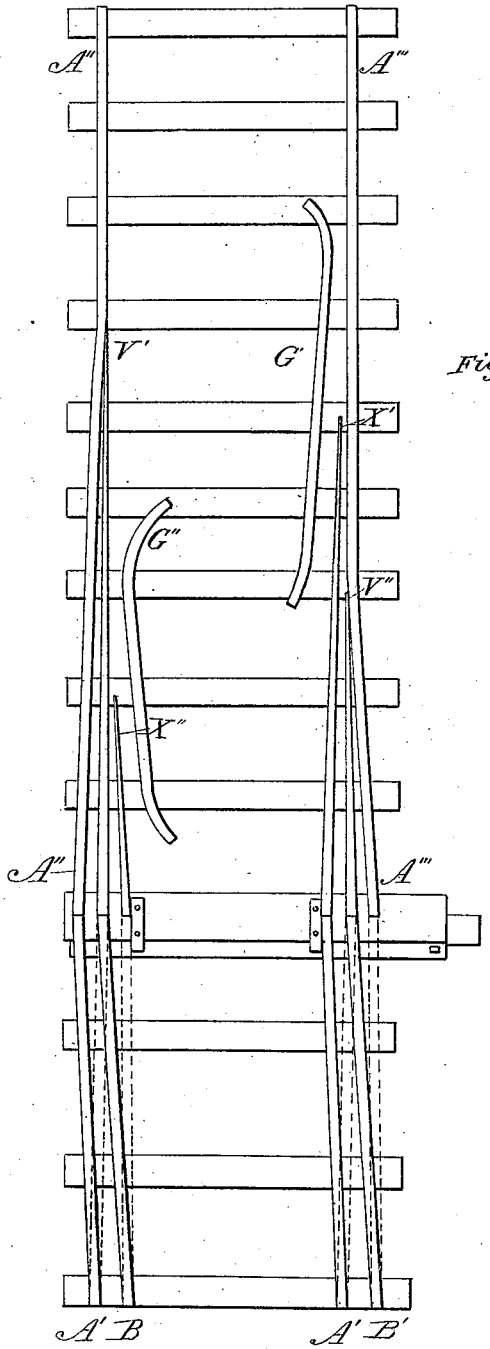

Fig. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

PETER V. M. RAYMOND, OF WAVERLY, IOWA.

IMPROVEMENT IN RAILROAD-SWITCHES.

Specification forming part of Letters Patent No. **211,670**, dated January 28, 1879; application filed November 22, 1878.

To all whom it may concern:

Be it known that I, PETER VOORHIES MILLER RAYMOND, formerly of Charles City, Iowa, and now a resident of the city of Waverly, county of Bremer, same State, have invented certain new and useful Improvements in Railroad-Switches, of which the following is a specification:

My invention relates to railway-switches of that class in which a siding is connected to the main track by points and guard-rails in such a manner that whether the switch is open or closed a train moving from the siding or on the main track in either direction is held upon the track without displacement.

It consists, first, in fixed points, spring-points, and guard-rails, in combination with the main rails and with opposite movable main and side rails.

It consists, further, in certain specific constructions and arrangements of the fixed main rails, spring-point rails, fixed points, and guard-rails, all of which will be clearly described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 shows a plan view of my improved switch and siding set for the main track, whether the cars are running in one direction or the other. Fig. 2 represents a modification or re-enforcement of the spring-point. Fig. 3 represents the switches set for the siding.

In these drawings, A″ and A‴ represent the fixed main rails; A′ A′, the main switch-rails, and B B′ the siding switch-rails. These main and siding switch-rails are connected to each other and moved by a common bar in the ordinary manner. The main fixed rails A″ and A‴ are made with a slight jog or offset at D′ D″, and are slightly turned outward, so that the points of the spring-rails V′ and V″ may lie snugly against the inner faces, and cause the inner line of main and spring-point rails, when in contact, to be approximately straight. These spring-points V′ V″ are fixed at their larger ends to the ties, as shown in the figures, and so placed that the elasticity of the points shall hold them normally in contact with the main rails. These spring-point rails are the longer about fifteen and the shorter about ten feet in length, and are fixed to the ties throughout part of their length, leaving enough of the points free to move. The measure of adjustment for this purpose, both for the thickness of the spring-points and the proportion of their length, is this: There must be space left between the fixed part of the spring-rails, or the limit of their movement, and the main fixed rails, to permit the flange of the wheel to pass between when the train is moving from the siding to the main track, whether the switch be in a position shown in Fig. 1 or in Fig. 3. Further, there must be sufficient strength in the spring-points and their position in relation to the main rail must be such that a train moving, for example, from the direction of the siding upon the main switch-rails A′ A′, Fig. 1, shall be carried safely upon the switch-points V′ V″ until the thread overlapping said switch-points and the space between them and the main rails A″ A‴ shall rest upon the said main rails.

In addition to these spring-point rails, I have provided certain fixed points. (Shown at X′ X″.) These are arranged in the manner shown in Figs. 1 and 3. The fixed rail X″ is arranged to meet exactly the switch siding rail B, and at ordinary distance from the fixed end of the rail V′. The point, however, approaches the spring-rail V′, and is at a distance from the side spring-rail only sufficient to permit the passage of the flange between the two.

The length of X″ ordinarily should be about eight feet, and it should be firmly spiked to the ties. The point may be of reasonable thickness for strength, ordinarily about an inch. The pointed fixed rail X′ should be about thirteen feet in length. Its larger end meets the main rail on that side where the switch is set for the siding, as shown in Fig. 3. The larger end is located at the same distance from the rail next thereto as that which separates the rails A′ B′. These fixed points are made like the spring-points, and should be located at their points at the distance from the rails next to them only sufficient to permit the passage of the flange. This location of these rails permits a train coming from the siding—for example, when the switch is set for the main track, as shown in Fig. 1—to be supported and directed into the main track without liability of dis-

placement. The wheel on the left-hand side, going in the direction of the arrow 1, will be supported by the rail X″ until the tread, overlapping said rail and the space between it and the next, shall be borne upon the next; or a train coming on the main track in the direction indicated by arrow 1, when the switch is set for the siding, as in Fig. 3, the wheel would be supported on the right-hand side by the fixed point X′ until the overlapping tread should bear upon the main rail A‴.

The guard-rails G′ G″ are located as clearly shown in the drawings. G′ is opposite the point of the spring-rail V′. When the train is moving in the direction indicated by arrow 2, it bears against the inner surface of the flange of the wheel on that side, and holds the flange on the other side from entering between the spring-point and the main rail. When the train is going in the opposite direction and running upon the fixed-point rail X′ the guard G′ also serves to crowd the flange of the wheel and compel the tread, as it approaches the thinner portion of the rail X′, to overlap the main rail A‴ and move thereon.

The arrangement and office of the guard-rail G″ is precisely the same in relation to the points opposite it. The construction of the point and the offset against which it fits are shown more clearly in the detached Fig. 2. The offset is made to correspond to the thickness of the point for the purposes heretofore explained. If necessary, the elasticity of the point may be re-enforced by a bolt passing through said point and main rail, with a spring, as shown at *t*, between the head of the bolt and the outer surface of the rail.

I am aware that safety-points and spring-points have been heretofore applied to a switch constructed with or connected to the main rails, so as to allow the whole to move as a switch; but I am not aware that precisely the construction and arrangement shown by me have heretofore been used, or that the fixed points and spring-points have been fastened to the ties in connection with movable main and side rails arranged opposite thereto and connecting therewith.

The advantage of my construction over those to which I have referred, besides simplicity of structure and cheapness, is mainly this, that there is less weight and complication of parts to be moved in the operation of the switch.

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

1. The combination of the fixed rails A″ A‴, the spring-rails V′ V″, and the fixed points X′ and X″ with the movable main and siding rails, as set forth.

2. The combination of the guard-rail G′, and the spring-point V′, and fixed point X′ with the main rails A″ A‴, as set forth.

3. The combination of the guard-rail G″, spring-point rail V″, fixed point X″, and rail next to said fixed point, as set forth.

4. The combination of the guard-rail G″, spring-point rail V′, and fixed-point rail X″ with the spring-point V″ and the main rails, as set forth.

PETER V. M. RAYMOND.

Witnesses:
MYRON E. BISHOP,
ISAAC W. LANSING.