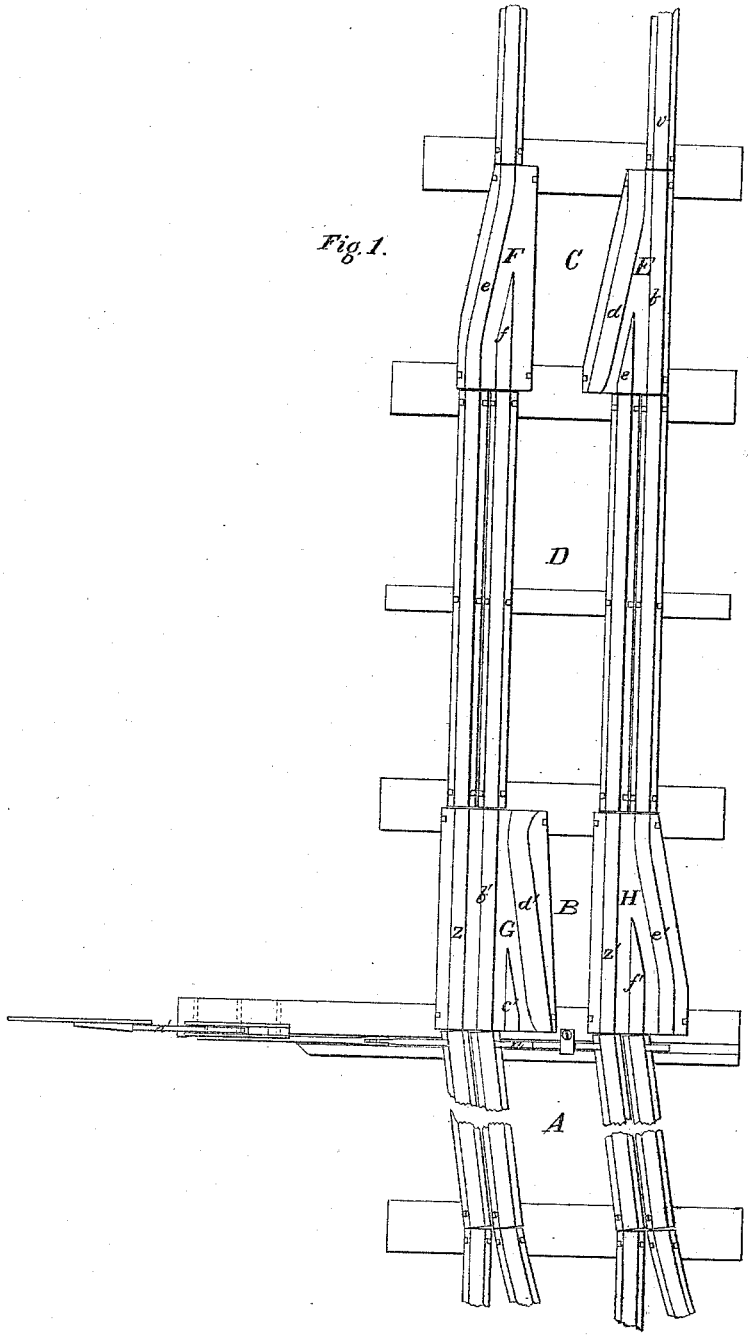
2 Sheets--Sheet 1.

P. V. M. RAYMOND.

Improvement in Railway-Switches.

No. 114,196. Patented April 25, 1871.

Fig. 1.



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P. V. M. RAYMOND. 2 Sheets--Sheet 2.

Improvement in Railway-Switches.

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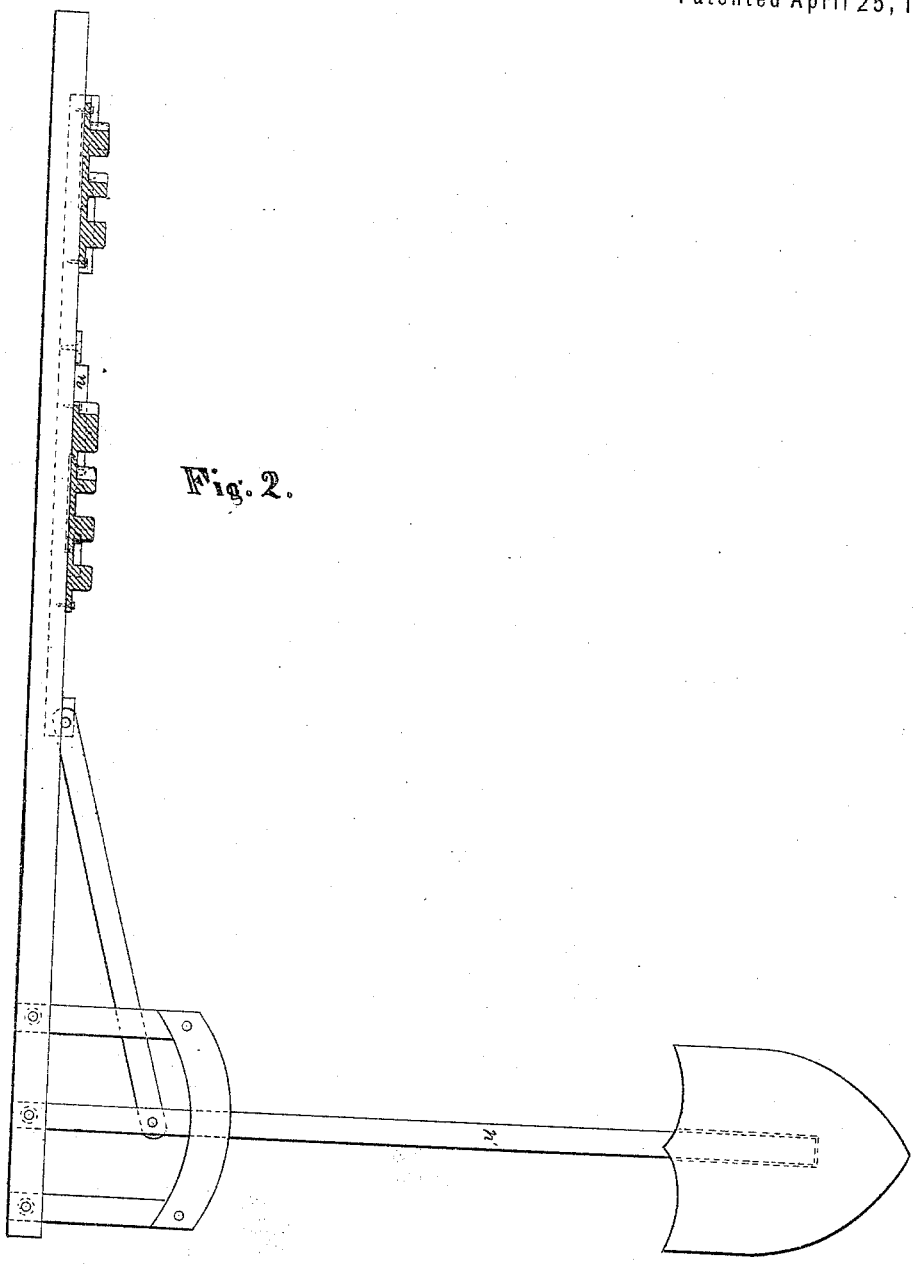
Fig. 2.



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United States Patent Office.

PETER V. M. RAYMOND, OF CHARLES CITY, IOWA.

Letters Patent No. 114,196, dated April 25, 1871.

IMPROVEMENT IN RAILWAY-SWITCHES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, PETER V. M. RAYMOND, of Charles City, in the county of Floyd and State of Iowa, have invented a new and valuable Improvement in Railroad-Switches; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a plan view of my invention.

Figure 2 is a vertical cross-section.

My invention has relation to means for preventing the accidents which are liable to occur when switches are left open; and

It consists in the construction and novel arrangement of a safety-switch, consisting of two pairs of rail-plates, connected by as many track-rails as there may be branch tracks, and communicating with the branch tracks through pivoted tongue-rails, as hereinafter described.

The object of this method of construction is to provide a more gradual bend for the passage of the car. This is accomplished by elongating or flattening the curves of the rails on the plates, and by placing the turning-points at such distances from each other that the wheels of the forward truck will not reach the second bend until after the wheels of the rear truck have passed the first bend; hence the pairs of cast-iron frogs are placed at a distance from each other, and the construction adopted of connecting these plates by wrought-iron rails is designed to serve important purposes of strength, convenience, and economy.

In the drawing I have illustrated the invention as applied to the most ordinary case, where the main track branches into two; but the same principle may be applied to more complicated cases, where there are three or more branch tracks, with advantage.

The letter A of the drawing designates a double-tongued switch, operated by means of a sliding chair, *n*, and lever *n'*;

B represents the pair of rail-plates or frogs, which lies adjacent to and communicates directly with the tongues *a a* of the switch;

C represents the pair of rail-plates which lies at the single track end of the switch; and

D represents the double-rail track which connects these two pairs of rail-plates.

The tongues *a* of the switch are pivoted at the ends furthest from the rail-plates B, and their shifting ends lie next to these rail-plates.

The rail-plates E and F, which compose the pair C, may be described as follows:

The plate E is provided with a rib, *b*, point *e*, and guard *d*.

The rib *b* is a prolongation of the single-track rail *v*, and extends forward in the same right line, communicating at the other end of the plate with the outermost of the double rails on the same side of the short connecting track D.

The point *c* adjoins the innermost of the same two rails, and the guard *d* extends on the other side of the point *c* from the straight rib *b*.

The plate F is also provided with a rib, *e*, connecting the single-track rail of this side with the outermost of the double rails of the connecting track D, and with a point, *f*, adjoining the innermost of the double rails; but this plate is without a guard-rail, and the rib *e* is curved twice in its length in the manner of a line of beauty, or elongated letter **S**.

The complimentary pair of rail-plates B is composed of the plates G and H, which are, respectively, similar to the plates E and F, with the exception that the points and guard are conversely placed with reference to the ribs, and that an additional rib, *z z'*, is added to each plate.

The plate G, situated on the opposite side of the track from the plate E, is provided with the straight rib *b'*, point *c'*, and guard *d'*.

It also has the additional straight rib *z* parallel with and outside of the rib *b'*.

The larger end of the plate, or that which carries the point *c'*, is turned toward the tongues of the switch, which shift in such a manner as to connect at one time with the point *c'* and rib *b'*, and at another with the ribs *b'* and *z*.

At the other or smaller end of the plate the ribs *b'* and *z* are permanently connected with the rails on this side of the double-rail track D.

The plate H is situated on the same side of the track with the plate E, and is provided with the curved rib *e'*, point *f'*, and the straight rib *z'*.

The curved rib *e'* and point *f'* are conversely placed with reference to the same parts on plate F, and the additional rib *z'* is a prolongation in a straight line of the inner rail on this side of the connecting double-rail track D, and lies on the opposite side of the point *f'* from the curved rib *e'*.

The double tongue of the switch on this side connects at one time with the curved rib *e'* and point *f'*, and at another with the point *f'* and the straight rib *z'*.

At the other or smaller end of the plate the ribs *e'* and *z'* are permanently joined to the rails of the double-rail track D.

All of these plates E F G H have their larger ends turned in the same direction—that is to say, toward the branching end of the switch.

It is apparent that a train approaching the switch on either of the branch tracks will be guided safely to the main track at the other end of the switch, whether the tongue-rails of the switch be turned to the right or to the left; and it will be perceived that when the switch-rails are turned to one side there will be two bends in passing through the switch, one at the junction of the switch-rails with the frogs B and the other on the frogs C. By this construction these bends are so far separated from each other that the trucks of the car are passing over but one at a time, and I am enabled to graduate the curves so that there will be no wrenching of the wheels in the bends or at the crowding of the guard-rails.

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

The combination, with the double-shifting tongues A of the pairs B and C, of frogs conversely arranged, and connected by the intermediate short track D having two or more parallel rails on a side, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

P. V. M. RAYMOND.

Witnesses:

D. D. KANE,

FRANK B. CURTIS