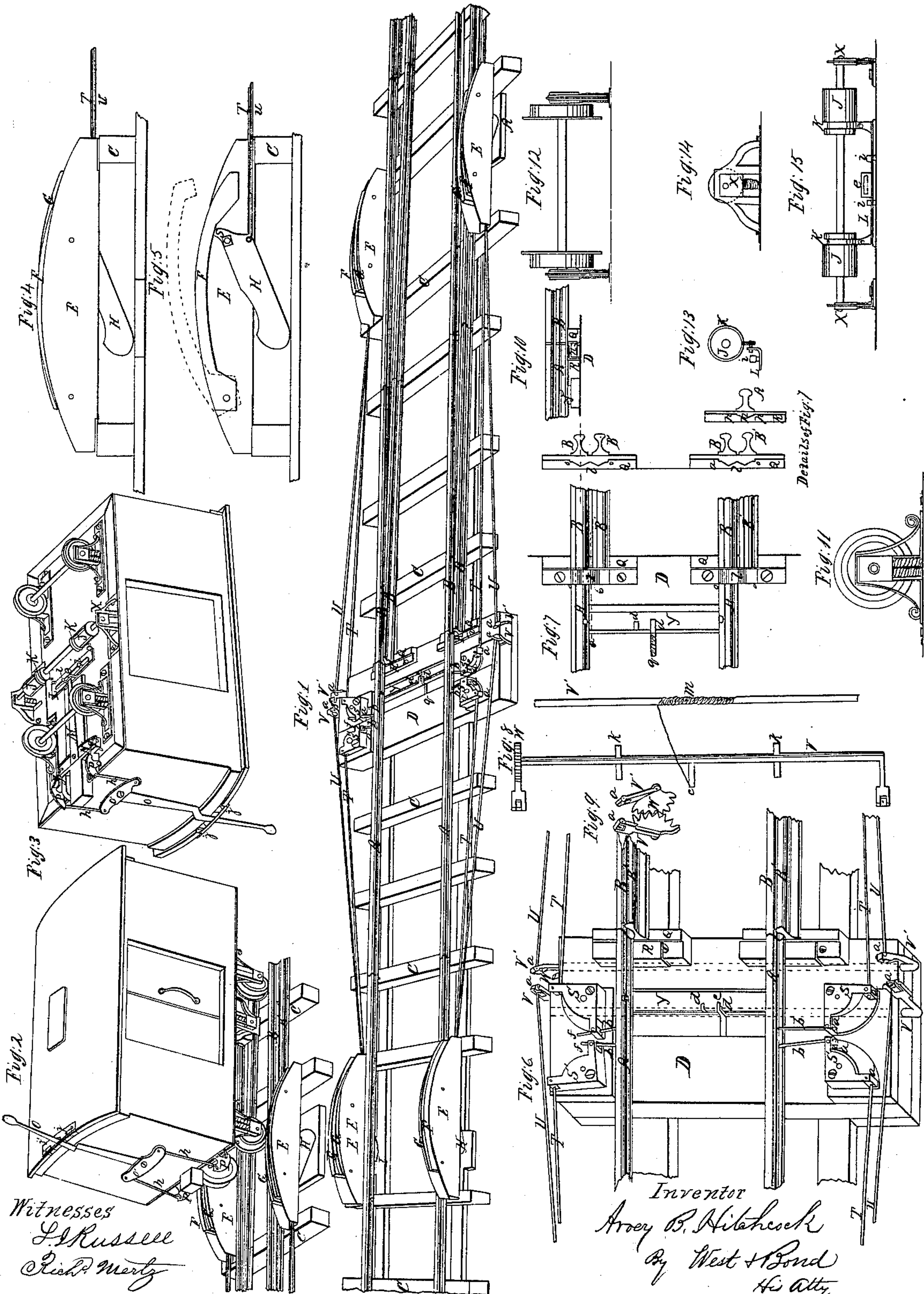


A. B. Hitchcock.

Railway Switch.

N^o 90,264.

Patented May 18, 1869.



Witnesses
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ARVA B. HITCHCOCK, OF JUNEAU, WISCONSIN, ASSIGNOR TO HIMSELF AND RICHARD MERTZ, OF SAME PLACE.

Letters Patent No. 90,264, dated May 18, 1869.

IMPROVED RAILWAY-SWITCH

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, ARVA B. HITCHCOCK, of Juneau, in the county of Dodge, and State of Wisconsin, have invented certain new and useful Improvements in Constructing and Operating Railway-Switches; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of a track with switch.

Figure 2, a perspective view of a portion of the track with car.

Figure 3, an inverted car, showing device for operating the switch.

Figure 4, a side, and

Figure 5, a sectional view of the lever-box.

Figure 6, an isometric view of the head-block and switch.

Figure 7, a plan and sectional view, showing the fastening.

Figure 8, a view of the catch-rod detached.

Figure 9, a gearing for making the rods operate together.

Figure 10, a section of rail, showing catch.

Figure 11, a truck-wheel.

Figure 12, an end view of a truck.

Figure 13, a section of the wheel J and shaft, showing the operating-collar.

Figure 14, a side view of the bracket by which the device for operating the switch is attached to the car.

Figure 15, a detached view of the device for operating the switch.

Like letters refer to similar parts in all of the figures.

The nature of my invention consists in operating a railway-switch by pressure-rollers, attached to one or more of the cars of a train, or to the engine, and pressing upon or passing over levers attached to or located at the side of the rails; in moving the switch-rails to either side by horizontal levers, connected, by rods, with bent levers, at or near the ends of the switch-rail; in providing an improved lock, to keep the rails in place; in making the levers for moving the rail of a greater curve than the levers for operating the lock; in making the catch for holding the rail in place, so that the rail will not only be held in place, but will move to place if left slightly wrong; in operating the switch by means of a system of levers attached to one or more cars, and in the several combinations hereinafter set forth and claimed as new.

To enable others skilled in the art to make and use my improved switch, I will proceed to describe its construction and operation.

A represents the switch-rail.

B and B, rails of the permanent way.

C, ordinary cross-ties.

D, the block or platform supporting the switch.

E, the box or casing containing the lever.

F, the curved levers or hinged pressure-bars for operating the weighted levers H, by means of which the switch is locked or unlocked.

G, the curved levers or hinged bars for operating the weighted lever I, by means of which the rails A are moved from side to side, as desired.

J, fig. 3, represents two friction and pressure-rollers, which rotate upon a shaft attached to the bottom of a car or engine, by means of brackets X.

K, collars, by means of which the wheels or rollers J are slid into position on the shaft.

These collars are attached to a cross-bar, L, on the end of the lever M, or connected with it by the loop or connection e, fig. 15.

This cross-bar L is secured to the car by means of the bolts or catches i, located in an opening through it, or by any other suitable means.

N is a cross-head or bar, permanently attached to the outer end of lever M.

O, an upright lever, so attached to a car as to be easily reached and operated, and, at its lower end, is provided with a cross-head, O'.

P, bell-crank levers attached to one end of a car, at the bottom, as shown.

They are connected with the lever O by the rods h, and to the lever M by the rods g.

Q represents head-blocks for supporting the ends of the rails.

R, slide-blocks imposed thereon, for supporting the end of the switch-rail.

S represents bent levers or arms, which are pivoted to the platform D, and connected with the rails A by the rods b, and with the weighted levers H by the rods T.

At the end of each arm they are provided with pivoted sockets a, for the rods b and T, so that in turning they will not bind on the rods, but leave them free to pass through.

These rods, at the ends, are provided with heads f, to prevent their being drawn through the pivoted sockets a, while they are free to push through.

Due allowance for these rods to pass through must be made in order to be able to operate the switch, by the cars, in either direction. Otherwise, one set of rods would hold the other fast, and prevent either from operating.

Figs. 1 and 6 show the rods b protruding at f.

V and V' represent two rock-shafts, located transverse the track, and in the block D.

The shaft V, fig. 8, rests upon bearings k, suitably located on said block D, and at or near the centre is an arm, c, for locking the switch when set, which arm c falls into notches in the bar Y, which connects the rails A.

This arm is held in place by a spring, m, coiled on

V', or by other suitable spring, as the dropping of the weighted levers H releases the strain of the rods U, so that the spring operates easily to turn the shaft V.

When the train comes from the direction of A, the action of the levers H is directly upon the shaft V, but when it comes from the direction of B, the direct action is upon V', and from that transferred to V, by means of the gearing W, fig. 9, so as to give V the same movement from either direction, and insure the unlocking of the switch.

The head-blocks Q are made of iron, or wood, iron-faced, and the rails B and B' are attached to them at the back. The front is cut away, so as to receive the sliding block R.

This depression has also two triangular notches l, which are directly opposite to the ends of the rails B B'.

The sliding block R has a corresponding projection, n, directly beneath the rail A, to which it is permanently attached.

The notches l are provided with shoulders o, and the projection n with shoulders p, so that the block R cannot be moved beyond the proper position; and, by reason of the angularity of the notches l and the projection n, if the switch-levers should fail, from any cause, to move the rail A to its exact position, the weight of the car or train will force it into place, and bring it exactly in line with the opposite rail.

The rails A, in passing from B to B', or *vice versa*, is slightly elevated by this arrangement, for their accuracy and security.

The lever-box or casing E is made in any convenient form, and so located on the track, that when the wheels J are moved to one side, they, or one of them, will pass over it, and also, so that when the lever O is at rest, the wheels J will pass by without hitting.

The operation is as follows:

When it is desired to change tracks, from B' to B, from the single-track side, as shown at fig. 1, the lever O is thrown into the notch j', fig. 2, which throws the wheel J to the left-hand side of the car, and beyond the rail, so that it will come over the levers in casing E E, first striking the curved lever F, which presses upon the point s of the lever H, fig. 5, and draws back the rod U, which is attached thereto below the pivotal point.

This turns the rock-shaft V backward, and withdraws the lock-catch c from the notch d of the connecting-bar Y, leaving the rails A free to be moved.

The curve of F being less than that of G, the wheel J will strike that first, as it is the highest at the ends, and the unlocking is done before the pressure begins to bear on G.

The switch being now unlocked, the wheel J strikes against or upon the curved lever G, which operates the weighted lever I, which is like H, as shown in fig. 5, and draws back the rod T, which rod turns the bent lever S', and draws the rails over, by means of the rod b, connecting it therewith.

As soon as the rail is moved, the wheel passes off

from the curved levers F and G, when the rock-shaft V returns to place, by means of a spring or weight, and the catch c locks the rail in its new position; and if other cars having switch-wheels attached to them should pass on the same levers, or over the levers on the opposite side of the switch, they would only unlock the switch, without moving the rail, while the notches l and projection n would hold the rails in place, so that no possible harm could result therefrom.

In operating the switch from the other side, the operation is the same, with the exception of the rock-shaft V' coming into use, and transferring the power from that to the shaft V by the gearing W.

The wheels J are always set so as to come in contact with the system of levers on the side to which it is desired to move the switch; and only one set of levers, F H and G I, is at any time used to operate the switch, and all of these, with the other parts, are so covered or constructed as to avoid being stuck by dirt, snow, or ice.

The boxes E are located about sixty-five feet from the block D, and from that, with the drawings, the sizes of the parts can be easily determined.

Having thus fully described my invention, with its construction and operation,

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

1. The combination and arrangement of the curved levers F, with the weighted levers H, rods U, and rock-shaft V, for unlocking the switch, substantially as shown.
2. The levers G, when so curved and located that the wheel J, in passing over in either direction, will come in contact therewith, and unlock the switch, before striking or operating the levers F, substantially as specified.
3. The combination and arrangement of the levers F and G, weighted levers H, and rods T U, with the bent levers S, and rock-shafts V and V', substantially as and for the purposes set forth.
4. The catch l and n, in combination with the head-blocks Q and slides R, substantially as and for the purposes specified.
5. The rock-shaft V, when provided with the spring-catch c, substantially as and for the purposes specified.
6. The pivoted connections a, in combination with the rods T, U, and b, provided with heads f, substantially as described.
7. The collars K, in combination with the wheels J and lever M, substantially as and for the purposes specified.
8. The operating-lever O, provided with the cross-head O' and rods h, in combination with the bell-crank levers P, rods g, and lever M, provided with the cross-bars N and L, for adjusting the wheels J, substantially as specified.

A. B. HITCHCOCK.

Witnesses:

L. L. BOND,
E. A. WEST.