

W. W. TODD & H. M. TSCHUDY.  
 Railroad-Switch.

No. 210,373.

Patented Nov. 26, 1878.

Fig. 1.

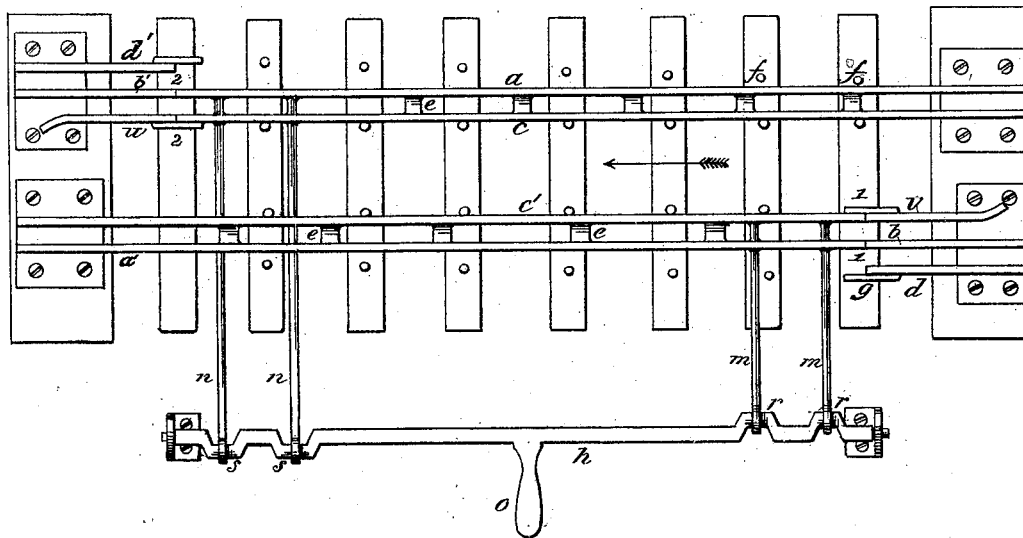
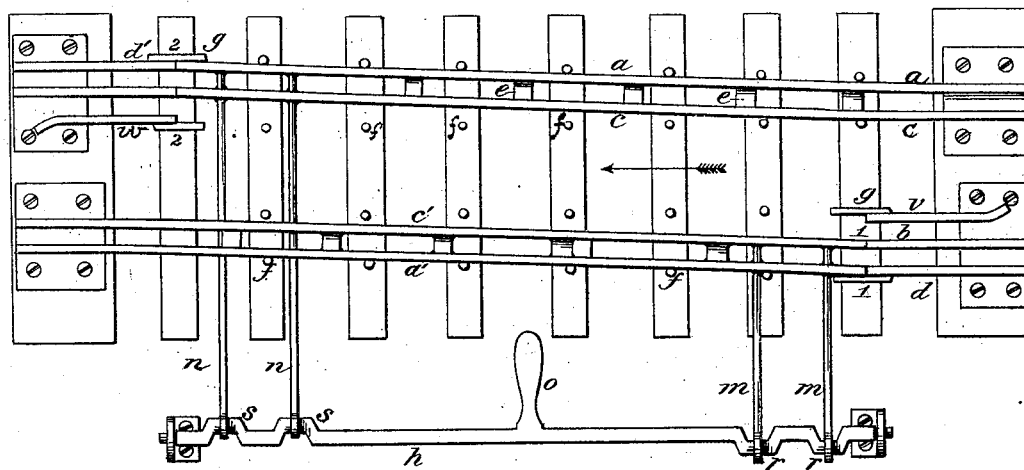


Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN RAILROAD-SWITCHES.

Specification forming part of Letters Patent No. **210,373**, dated November 26, 1878; application filed November 11, 1878.

*To all whom it may concern:*

Be it known that we, WARNER W. TODD and HENRY M. TSCHUDY, of Philadelphia, Pennsylvania, have invented an Improvement in Railroad-Switches, of which the following is a specification:

Our invention relates to railroad-switches, the object of it being to secure greater simplicity and cheapness in the construction, with convenience, durability, and safety in use. It is designed more especially for use in a yard where there are numerous branch lines and switches, though obviously it may be used in connection with any ordinary siding. The particular features which constitute the invention are indicated in the claims.

In the drawing, Figure 1 represents a plan view of the switch set for the approach of trains on the main track; Fig. 2, a similar view of the switch set for the approach of the train from the sidings.

In both the figures, on the right-hand side, *a* and *b* represent the main track, the rail *b* on one side terminating at 1, and the rail *a* on the other side at 2. The rails which form the siding on that side are indicated at *c d*, of which *c* terminates on the same transverse line with the main rail *a*, and *d* on the same transverse line with the main rail *b*. On the other end—that is to say, on the left-hand side of the drawing—the main rail which forms, with its prolongation, the switch on that side of the track is marked *a'*, and in Fig. 1 is in connection with the main rail *b*, while the main switch-rail *a* is in connection with the main rail *b'*. The switch-rails plainly are prolongations of the main rails and sidings, and the arrangement as clearly shows that the rails composing switch and main track break joints, so as to present a continuous rail opposite each of the movable switch ends on the lines 1 1 and 2 2; but, as inspection will show, the switch is exactly alike at each end, and on the left hand is represented the end of a rail of a siding nearly opposite to the first-described siding, the rail corresponding exactly to *d*, and being marked *d'*. Another inner rail (marked *e'*) corresponds to the side rail *e*, and forms the switch-rail of the opposite siding.

The switch-rails on each side are firmly con-

nected by braces *e e*, and their lateral movement may be limited at the ends by any of the devices ordinarily used, as by fish-bars, (shown at *g g* on the side rails, or on the guard rails *v w*,) or by the common chairs. At other points the switch-rails rest against stops *f f*. The switch-rails may be conveniently moved and controlled by the rocking-shaft *h*, provided with cranks, those upon one end being turned in a direction opposite to those upon the other.

Rods *m m n n* connect the shaft by these cranks to the ends of the switch-rails, the construction causing these rails to move in opposite directions at one semi-rotation of the shaft. The shaft is represented as provided with a lever, *o*, by which it may be moved or locked in place.

Referring to Fig. 1, it will be observed that the lever is thrown outward. This throws inward the right-hand cranks *r r* and outward the left-hand cranks *s s*, thus forcing inwardly toward the center of the track both the main and siding switch-rails. The main switch-rail on each side is thus brought into line with the main rails *b b'*, as before indicated, and the siding switch-rails into line with the guard-rails *v w*.

It will be observed without further explanation that the adjustment of the switch caused by reverse movement of the rocking shaft connects the main track with the sidings, as shown in Fig. 2.

In the adjustment of the switch shown in Fig. 1, the train moving upon the outer or main rails, the inner or siding switch-rails act on each side as guard-rails to prevent any crowding upon unsupported parts of the main switch-rails, these siding switch-rails being themselves supported by the inner lines of stops.

In the adjustment shown in Fig. 2 the train, whichever way it moves, must go upon an inner and outer rail. It is then held against crowding on one side by the outer rail resting directly against the stops, and against crowding on the other by reason of the inner rail being connected to the outer rail, which also rests against its stops.

In general terms, as the figures show, when the switch is set for the main track the switch-rails are both drawn inward and rest against

inner lines of stops, and when the switch is set for the siding they are both thrown outward and rest against outer lines of stops; but as the switch-rails on each side are firmly braced to each other throughout the main portion of their moving parts, the stops brace the inner and outer rails alike.

This we regard as the great advantage of our construction, the switch-rails, whether set for main lines or sidings, being almost as firm as if spiked to the ties, the construction being the same, therefore, at both ends. The adjustment of the switch shown in Fig. 2, which brings the train from the right in the direction of the arrow by rails *c d* into the main track, also may bring from the other opposite siding, and from the opposite direction, by rails *c' d'* a train also into the main track. This plainly is not a crossing from one side to the other, although a train coming into the main track from one siding may, by backing up and changing the switch, be turned upon the other siding. It could easily become a crossing by removing the outside stops on siding-rails *d* and *d'*, when the siding-rails *c d'* and *c' d* could be thrown directly into connection. This is possible, as the construction and arrangement require for the operation described less than ordinary lateral movement of the rails.

We have shown the rails connected by double

rods and cranks at each end of the oscillating bar; but obviously one at each end would serve the purpose.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A railway-switch composed of the main rails *a* and *b*, the siding-rails *c* and *d*, *a* and *c* being movable and *b* and *d* fixed, and the main switch-rail *a'*, as set forth.

2. The combination of the main and side switch-rails *a c* and *a' c'* with the fixed main rails *b b'*, and fixed side rails *d d'*, as set forth.

3. The combination of the switch-rails, main and side rails, and the guard-rails *v w*, as set forth.

4. In combination with the two sets of switch-rails adapted to move inward and outward at opposite ends, the inner and outer lines of stops, as set forth.

5. In a railway-switch substantially of the construction described, the braces *e e*, connecting the switch-rails on each side, as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WARNER W. TODD.

HENRY M. TSCHUDY.

Witnesses:

WM. J. MIDDLETON,

WM. G. TOWSON.