T. H. FINNELL.
Railroad-Switch.

No. 223,587. Patented Jan. 13, 1880.

Fig. 1.

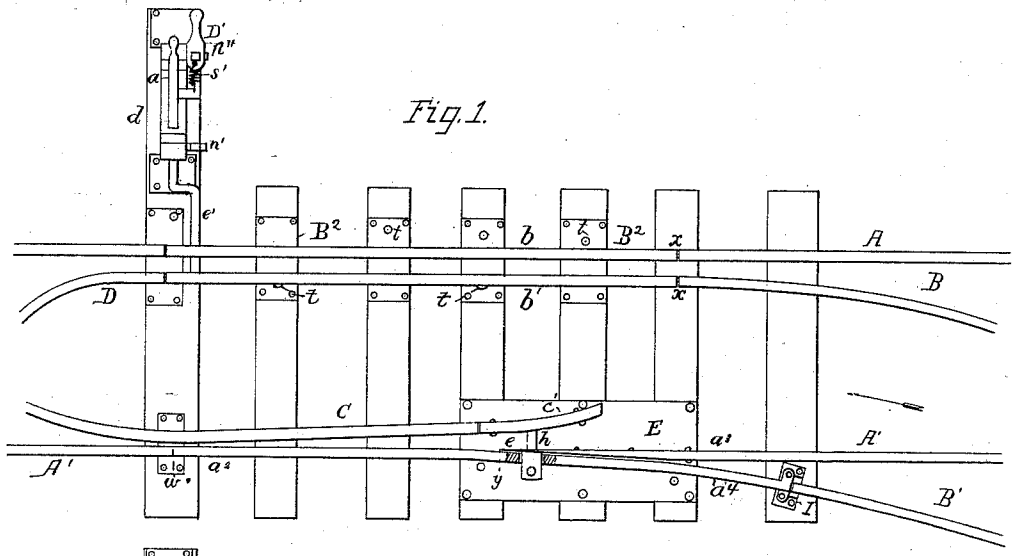


Fig. 2.

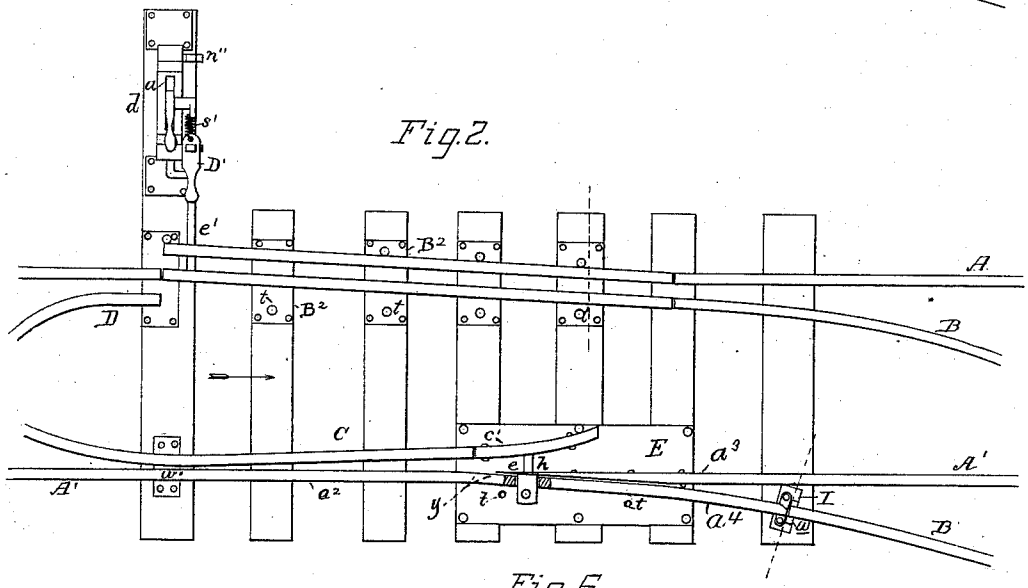


Fig. 6.

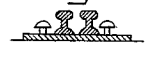


Fig. 3.

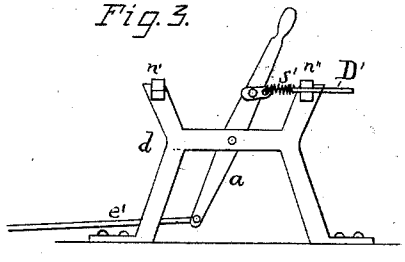


Fig 4

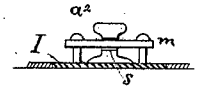
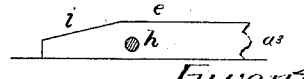


Fig. 5.



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UNITED STATES PATENT OFFICE.

TIMOTHY H. FINNELL, OF SYRACUSE, NEW YORK.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 223,587, dated January 13, 1880.

Application filed May 3, 1879.

To all whom it may concern:

Be it known that I, TIMOTHY H. FINNELL, of Syracuse, Onondaga county, State of New York, have invented new and useful Improvements in Railroad-Switches, of which the following is a specification.

My invention relates to certain improvements in switches, fully described hereinafter, intended to guard against accidents from misplacement and facilitate construction and operation.

In the drawings forming part of this specification, Figure 1 is a plan view of my improved switch; Fig. 2, the same, showing the parts in a different position; Fig. 3, a side view of the stand; Figs. 4, 5, and 6, detached views.

A A′ are the parallel main-track rails; B B′, the turn-out rails.

The main rail A′ consists of the bevel-ended section a^3 and the straight portion a^2 of a rail, the bent portion a^4 of which is part of the turn-out rail B′, its end resting on a chair, I. The bevel of the section a^3 coincides with the curved side of the section a^4 of the rail B′, and terminates in a point, *e*, and is beveled at *i*, Fig. 5, so that the treads of the wheels can pass to the point without shocks and without battering the rail.

The rail a^2 a^4 is bolted to the sleepers at its end a^2; but the curved portion a^4 is unconfined, except at the end, which has a transverse slot, *s*, Fig. 4, receiving a cross-bar, *m*, bolted to pillars on the chair I, so that the said end may vibrate horizontally on its chair, but is held down by the bar *m*.

The chair has the usual flanges *w* for confining the end of the adjacent section of the turn-out rail B′; but the spring-section a^4 can play laterally to a slight extent, for a purpose described hereinafter.

A section, *b*, of the rail A is pivoted or bends at *x*, forming a switch-rail, and the turn-out rail B is prolonged, forming a section, *b′*, parallel and bolted to the section *b*, the free ends of both rails being connected to the rod *e′* of a switch-lever, *a*, the rod *e′* extending from the rail *b*.

The switch-stand *d* is provided with two lugs, *n′* *n″*, for the attachment of a slotted plate, D′, connected to the outer end of a spring, *s′*, attached to the lever *a*, so that by transferring the plate D′ to one or other of the lugs the lever will be drawn to that side and the switch-rails adjusted, but so that they will yield to lateral pressure and recover their position after the pressure is removed.

Heretofore the lever has had a spring-connection with the rod *e′*—a construction which results in the parts being clogged and rendered inoperative by snow or ice, that frequently cover the lower parts of the stand and appliances. By making a direct connection with the rod *e′* and using an adjusting-spring this is obviated.

A curved guard-piece, D, is bolted in a position within the fixed part of the rail A so as to coincide with the rail *b′* and form therewith a continuous guard-rail when the switch is in the position shown in Fig. 1.

A guard-rail, C, with curved ends, is bolted within the track, and extends at one end past the free ends of the rails *b* *b′*, and at the other some distance beyond the point *e*, and a bolt, *h*, passing through the guard-rail and point, and through a slot in the section a^4, aids in preserving the parts in position, and holds down the section a^4 without interfering with its lateral play. The rail C approaches the rail A toward the point *w′* opposite the free ends of the switch-rails, leaving only sufficient room for the flanges of the wheels to pass readily.

The point is secured to a plate, E, as is also the curved section *c′* of the guard-rail C, while the movable section a^4 rests on the plate, thus insuring the maintenance of the relative positions of all these parts, which is of the utmost importance.

In place of the usual chairs with lips, the chairs B^2 beneath the switch-rails consist each of a flat plate bored out or notched to receive the spikes or bolts confining it to the sleeper, and also to receive a rivet, *t*, with a shoulder or head, Fig. 6, which rivet serves as a bearing for the rail when adjusted laterally, but cannot be obstructed by ice, snow, or dirt, like the lips on ordinary chairs. Similar rivets are arranged on the plate E, to limit the movement of the section a^4.

When the parts are in the position shown in Fig. 1, trains can pass freely in either direction

upon the main track, which is practically without break, the inner section, b', of the turn-out rail B, with the section D, constituting a guard-rail to the main rail A, and the guard-rail C covering the break at y and opposite the ends of the switch-rails, so that there is no danger of displacement should there be a slight play of the switch-rails from any cause. This double duty of the rail b' is effected by placing the switch-rails as parts of the rails A B.

Should a car pass from the turn-out rails in the direction of the arrow, Fig. 1, the section a^4 will yield to permit the flanges of the wheels to pass between the same and the end of the section a^3, but will immediately resume its position, so that there can be no transfer from the main rails to the turn-out without setting the lever accordingly. The continued movement of the car will bring the flanges of the wheels laterally against the rail b', and will force the switch-rails to the position shown in Fig. 2 until the car has passed wholly to the main track, when the spring s' will carry the parts to the position shown in Fig. 1, leaving the main line intact. During these movements the guard-rail C prevents the car (notwithstanding the rails b b' are movable) from leaving the track, the position of the guard-rail at w' insuring the passage of the wheels nicely onto the end of the fixed rail.

When the switch is adjusted as shown in Fig. 2, cars passing in the direction of the arrow will pass onto the turn-out, the rail b' forcing the car laterally with the flanges of its wheels against the section a^4, which yields sufficiently for the flanges to pass between the section and the point. Should a train approach on the main track in the opposite direction, the guard-rail C will keep the wheels on the main rail A', and the flanges of the opposite wheels, bearing on the inside of the rail b', will carry the switch-rails to the position shown in Fig. 1 until the car has passed to the fixed rails, when the spring s' will restore the parts to the previous position.

It will be seen that as the switch-rails b b' only are required to be operated, the rail a^2 a^4 being automatic in its operation, the switch-stand may be placed at the same side as the rails b b' without carrying the switch-rod across the track, thus avoiding obstruction from ice and snow, which is apt to result when said rod crosses the track between the rails.

I claim—

1. The combination, in a switch, of the switch-lever controlled by a spring, parallel main rails A A', and turn-out rails B B', the ends of sections of the rails A B being united to form switch-rails at the side opposite to that to which the turn-out rails are curved, and the turn-out rail B' being a continuation of one of the rails of the main track, substantially as set forth.

2. The combination of the main, turn-out, and switch rails, arranged as shown, curved section D, and guard-rail C, arranged nearest the rail A' at the point opposite the inner end of the section D, as set forth.

3. The combination, with the lever a, connected to the rod e', attached to the switch-rails, of the adjusting-spring s', connected to the lever and adapted to be attached to lugs at opposite edges of the stand, substantially as specified.

4. The divided main-track rail, one part, a^3, terminating in a point, and the other part, a^2, being extended and bent outward opposite said point to form a spring-section, a^4, of the turn-out rail B', substantially as set forth.

5. The combination, with the rail consisting of the section a^2 and bent spring-section a^4, of the main rail A', terminating in a fixed point, beveled and lying close to the spring-section a^4, substantially as set forth.

6. The chairs B^2, provided with headed bearing-rivets t, substantially as set forth, and for the purpose specified.

7. The combination, with the rail having a fixed section, a^2, and spring-section a^4, and fixed point e on the main track, of switch-rails on the opposite side of said track, and lever a, arranged adjacent and connected to said switch-rails, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

TIMOTHY H. FINNELL.

Witnesses:

JNO. J. LYNCH,

M. J. MCCARTHY.