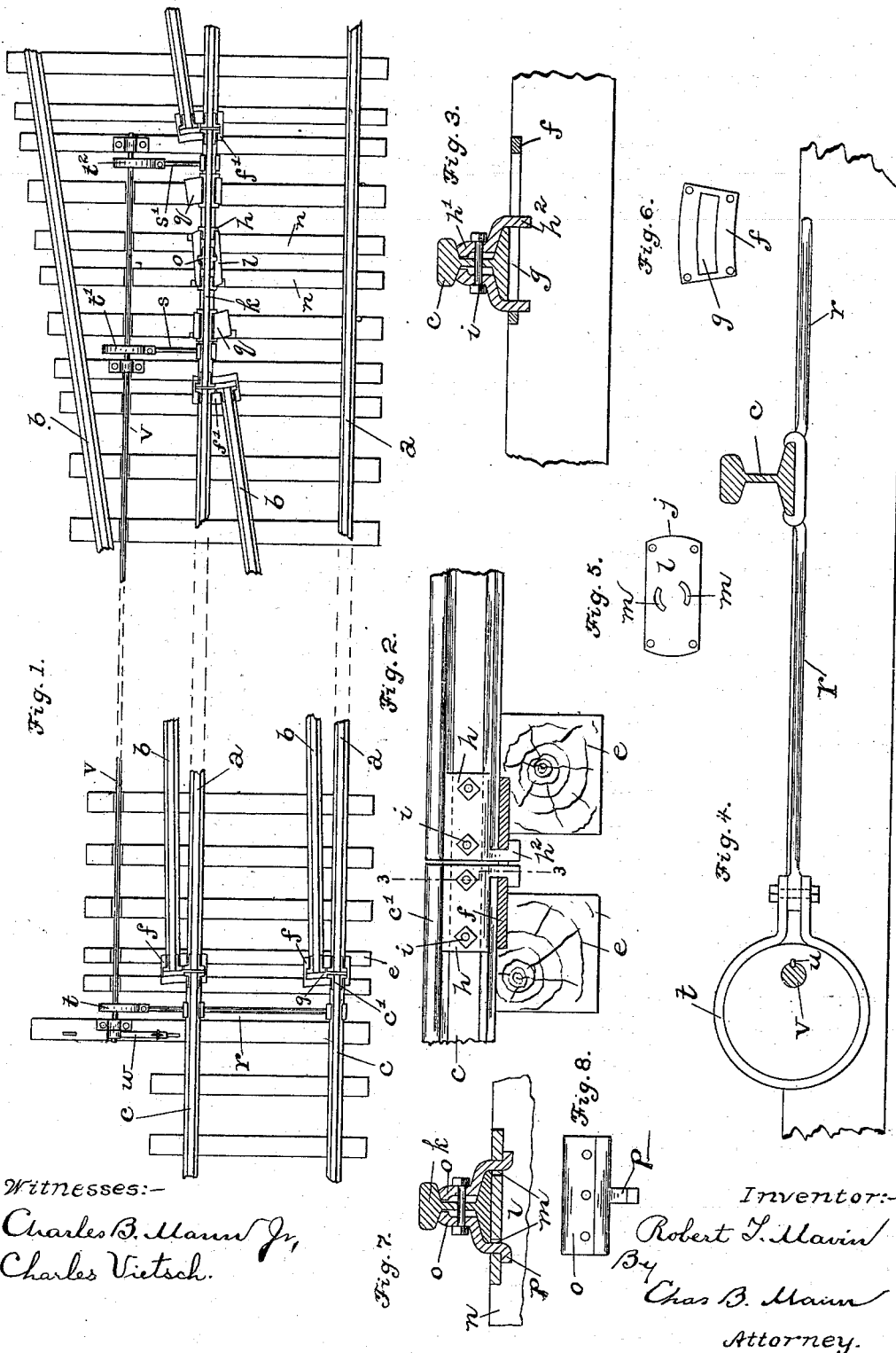


No. 650,152.

Patented May 22, 1900.

R. T. MAVIN.
RAILROAD SWITCH.
 (Application filed Dec. 23, 1899.)

(No Model.)



Witnesses:-
 Charles B. Mann Jr.,
 Charles Vietsch.

Inventor:-
 Robert T. Mavin/
 By Chas B. Mann
 Attorney.

UNITED STATES PATENT OFFICE.

ROBERT T. MAVIN, OF BALTIMORE, MARYLAND.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 650,152, dated May 22, 1900.

Application filed December 23, 1899. Serial No. 741,426. (No model.)

To all whom it may concern:

Be it known that I, ROBERT T. MAVIN, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Railroad-Switches, of which the following is a specification.

This invention relates to railroad-switches, and has for its object to provide an improved switch wherein the usual stationary frog is dispensed with.

In switches now commonly in use stationary frogs are used, which soon become worn out by heavy traffic and repairs must constantly be made. By my present invention I combine an improved construction of switch and a movable frog-rail, which are connected in such a manner that when the switch is moved the frog-rail will also be moved correspondingly.

As part of my invention I provide improved means for securing the ends of the rails at switches to the cross-ties.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a portion of a railroad-bed and illustrates the improved switch closed, the main-line track being continuous. Fig. 2 is a side elevation of the ends of the switch-rails and shows the improved device for securing the said ends in position, the plate being in section. Fig. 3 is a vertical section on the line 3 3 of Fig. 2. Fig. 4 is a side view of my improved eccentric switch-rail shifter. Fig. 5 illustrates a plan view of the center plate on which the frog-rail is swiveled. Fig. 6 is a plan view of one of the slotted end rail-plates. Fig. 7 is a vertical cross-section on the line 7 7 of Fig. 1 and shows the frog-rail, the center plate, and the side plates for swiveling the same together. Fig. 8 is a side view of one frog-rail plate.

Referring to the drawings, *a* designates the stationary rails of the main line, *b* the stationary branch or siding rails, and *c* the movable switching-rails, which are adapted to be moved to register with either the main line or the siding.

At the ends *c'* of the switching-rails *c* and the adjoining ends of the stationary rails *a* and *b* I provide two cross-ties *e* with a space between them, and on top of said cross-ties is

secured a flat plate *f*, whose opposite sides rest, respectively, on said two cross-ties *e*. The plate *f* has position above and bridges over the space between said two cross-ties and is provided with a segment-slot *g*, which extends longitudinally. This plate is to be secured to the cross-ties by spikes or in any other suitable way.

The ends of the stationary rails *a* and *b* and the ends of the switching-rails *c* are each provided on opposite sides with plates *h*, which are secured to the rails by bolts *i*. (See Figs. 2 and 3.) These plates *h* extend parallel with the web or shank of the rail and have a lateral flange *h'*, which seats on the rail-flange and at the outer edge of the rail-flange turns downward and terminates in a hook *h²*. The ends of the three rails *a b c* rest on the said plate *f*, and the hooks *h²* on the side plates *h* pass down through the slots *g* and engage under the vertical edges of said slots, as in Fig. 2. By this construction the ends of the rails *a b* are secured down to the ties, and the ends *c'* of the switching-rails *c* are, by means of the hooks *h²* and slots *g*, horizontally movable, so that said ends *c'* of the switch-rails may register with either the rails *a* or *b*.

In ordinary switches now in use frogs are employed to enable the rolling-stock to be transferred from one line to another, and these frogs are difficult to maintain on account of the hard blows they receive from the wheels passing over them. In place of the usual frog an oscillating frog-rail *k* is employed. This frog-rail rests on a center plate *l*, (see Fig. 5,) which has rounded ends *j*, and is provided near its center with two reversely-curved segment-slots *m*, and when this center plate is in position on the two cross-ties *n* the segment-slots open into the space between the said ties. The frog-rail *k* at its center or swiveling-point is provided on opposite sides with plates *o*, (see Figs. 1, 7, and 8,) and said plates are each provided with a central downward and laterally extending finger *p*, which passes through one of the slots *m* in the plate *l* and engages on the under side of said plate. It will thus be seen that when the center plate *l* is secured to the ties *n* the frog-rail *k* may be oscillated by means of the fingers *p* moving in the seg-

ment-slots *m*. At either side of the center or swiveling-point the frog-rail is provided with the plates *h*, previously described as on the switch-rail and having the hooks *h*² engaging under the rounded ends *j* of the center plate *l*. In order to better secure the frog-rail *k*, I provide additional plates *q*, secured to the cross-ties, and side plates *h*, secured on the frog-rail, and with hooks *h*². The plates *q* on the cross-ties are segment-shaped, but are without the slots, and the hooks *h*² engage the curved edges of the said plates *q*. At both ends the frog-rail *k* rests on slotted plates *f*¹, and the frog-rail ends are each provided with the side plates *h*, with the hooks already described.

In order to operate the movable switching-rails *c* and the frog-rail *k* in unison, I provide special mechanism, which will now be described.

The two switching-rails *c* are connected together by a tie-rod *r*, which is suitably secured to the rails. The frog-rail *k* is also provided at its ends with rods *s* *s*¹, and at their opposite ends said rods *s* and *s*¹ and rod *r*¹ of the switching-rail are each connected with an eccentric-strap of an eccentric. The eccentric for the switch-rails is designated *t* and for the frog-rail is *t*². A rod *v* extends parallel with the main-line track and passes through holes in each of the said three eccentrics, and keys *u* secure the rod and eccentric stationary with respect to each other. The eccentrics *t* and *t*² are both set alike on the rod *v*, while the middle eccentric *t*¹ is set to move in the reverse direction from the others. At one end the rod *v* is provided with an operating-lever *w*, whereby the rod may be made to turn a half-revolution.

The operation is simple and as follows: In Fig. 1 the switch is closed and the main line is intact. To open the switch, the operator will swing the lever *w* over or away from the track, and thereby turn the rod *v* for a half-revolution. The eccentrics being keyed to the rod *v* turn freely within their straps. The two eccentrics *t* and *t*² being set to pull on

the rods *r* and *s*¹ will draw those ends of the rails over, while the middle eccentric *t*¹, which is set in the opposite direction, will push that end of the frog-rail *k* over to register with the stationary branch rails *b*.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a railroad-switch the combination of the cross-ties; stationary main and siding rails; movable switching-rails; an oscillating frog-rail interposed at the intersecting-point of the main and siding rails and provided at each side and midway between its ends with a plate, *o*, each having a downward-extending finger; a center plate immovably secured to the cross-ties midway between the ends of said frog-rail and provided with reversely-curved segment-slots which receive the said downward-extending fingers on the plates, *o*, said slots and fingers forming the sole pivot connection between the said oscillating frog-rail and center plate; and means for operating the switching-rails and frog-rail simultaneously.

2. In a railroad-switch the combination of the cross-ties; stationary main and siding rails; movable switching-rails; plates secured to the cross-ties upon which the ends of the said rails rest and having segment-slots; plates, *h*, secured to the ends of the rails and each plate having a downward flange which passes down through the said slot said flange having a hook which takes on the under side thereof; an oscillating frog-rail interposed at the intersecting-point or crossing of the main and siding rails; an operating-rod; a plural number of eccentrics carried on said rod; and means connecting the said eccentrics with the movable switching-rails and also the said frog-rail.

In testimony whereof I affix my signature in the presence of two witnesses.

ROBERT T. MAVIN.

Witnesses:

ROBERT C. RHODES.
CHARLES VIETSCH.