

(No Model.)

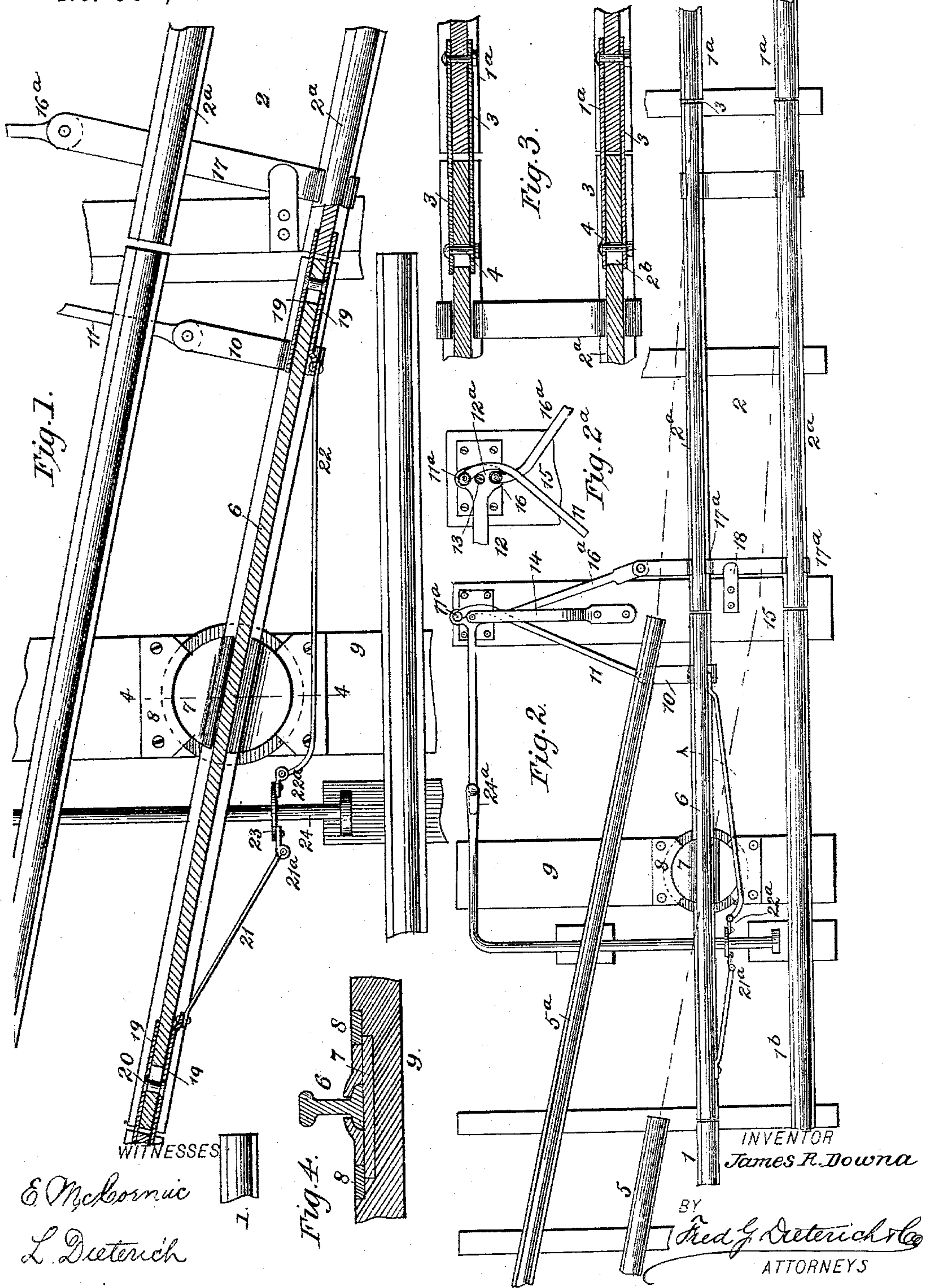
J. R. DOWNA, Dec'd.

E. V. DOWNA, Administratrix.

RAILWAY SWITCH.

No. 596,859.

Patented Jan. 4, 1898.





# UNITED STATES PATENT OFFICE.

JAMES R. DOWNA, OF GATE CITY, VIRGINIA, ASSIGNOR OF TWO-THIRDS  
TO W. E. TAYLOR AND C. C. BLAIR, OF SAME PLACE; ELLA V. DOWNA  
ADMINISTRATRIX OF SAID JAMES R. DOWNA, DECEASED.

## RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 596,859, dated January 4, 1898.

Application filed June 29, 1897. Serial No. 642,825. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES R. DOWNA, residing at Gate City, in the county of Scott and State of Virginia, have invented a new and Improved Railway-Switch, of which the following is a specification.

My invention has for its object to provide a simple, easily-manipulated, and effective railway-switch in which the parts are arranged to avoid the use of needle-frogs and guard-rails.

This invention also has for its object to provide a single switch-rail operated by means of a single operating-lever to move in unison with the shifting rails, whereby to set such rails in line with the main or side tracks.

My invention also seeks to provide a simple lever-operated locking means for holding the switch-rail and shifting rails in a locked position when swung in either direction.

The invention consists in a switch-rail mechanism embodying the peculiar combination and novel arrangement of parts, such as will be first described in detail and then be specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view, partly in section, of a portion of my improved switch mechanism, the switch-rail being shown connecting the shifting rails with the siding-rails. Fig. 2 is a plan view of the complete switch mechanism, the parts being set to complete the main-line rails. Fig. 3 is a detail horizontal section of the shifting rails that connect with the main-line rails. Fig. 4 is a detail section taken on the line 4 4 of Fig. 1.

Referring to the accompanying drawings, 1 1<sup>a</sup> indicate the main-line rails, and 2 the shifting rail-section, comprising the rails 2<sup>a</sup> 2<sup>b</sup>, the rear or fulcrum ends of which are connected to the main rails 1<sup>a</sup> by the spring-plates 3, fixedly secured at one end to the rails 1<sup>a</sup>, their other end having a sliding connection with rails 2<sup>a</sup>, such connection consisting of the bolts 4, secured to the plates 3, which pass through elongated slots 2<sup>b</sup> in the rails 2<sup>a</sup>, which slots, as will be seen by reference to Fig. 3, are so disposed as to admit of the shifting rails having a slight longitudinal movement as they are moved laterally, where-

by to bring the front ends thereof in a close relation to the siding and switch rails, as clearly shown in Figs. 1 and 2.

5<sup>a</sup> 5 indicate the siding-rails, one of which, 5, extends to a point in line with the front or swing end of the shifting rail-section, while the other, 5<sup>a</sup>, stops at a point in line with the end of the main rail 1<sup>b</sup>, the said rails 5<sup>a</sup> and 1<sup>b</sup> being spaced apart from the shifting rail-section a distance sufficient to admit of a free swing of the switch-rail 6.

The switch-rail 6 is supported on a turn-plate 7, held in keepers 8, secured to the cross-tie 9, such plate 7 being disposed midway of the switch-rail 6, which rail is of such a length that when swung in one direction it will form a continuation of the main-line rails, as shown in Fig. 2, and in an opposite direction the continuation of the side-track rails, as illustrated in Fig. 1.

To the inner end of the rail 6 is secured a laterally-extending arm 10, to the other end of which is pivotally secured a rod 11, which is secured at 11<sup>a</sup> to a double-acting lever 12, having its head portion 12<sup>a</sup> pivotally secured on a stud 13 of a bracket 14, secured to the cross-tie 15. The head portion 12<sup>a</sup> of the lever has pivotally secured thereto at a point diametrically opposite the connection 11<sup>a</sup> of the lever 11 the end 16 of the link or rod 16<sup>a</sup>, pivotally secured to the cross-bar 17, which has seat portions 17<sup>a</sup> for the rails 2<sup>a</sup> 2<sup>b</sup> and which is guided by the member 18, secured to the cross-tie 15.

So far as described it will be readily understood that when the lever 12 is turned to the left, as shown in Fig. 2, the switch-rail 6 will be moved in one direction (see arrow) and the shifting rails 2<sup>a</sup> 2<sup>b</sup> in an opposite direction until the said rail 6 is in line with the outer rail 2<sup>a</sup>, thereby making the main-track continuations.

To set the switch for the side-track, it is only necessary to turn the lever 12 to the right, (see dotted lines,) which will move the rail 6 to the position shown in dotted lines and the shifting rails to connect with such rail 6 and the rails 5 of the siding, thereby connecting the side-tracks with the main line.

To hold the switch-rail and the shifting rails to their adjusted positions, I have pro-



vided a simple locking means, which consists of a pair of plates 19 19, joined by a bolt 20, which passes through an elongated slot 6<sup>a</sup> in the rail 6, one set of such plates being provided at each end of the said rail 6. To one of the plates of each set rods 21 22 are pivotally connected. These rods extend toward each other and have their free ends joined to the diametrically opposite ends of a cross member 23, fixedly secured to a rock-shaft 24, suitably journaled in bearings below the rails and having a hand-lever 24<sup>a</sup>. As the rock-shaft has a fixed rotation and as the switch-rail 6 is swung laterally relatively thereto, the free ends of the rods 21 22 are pivotally joined to the cross member 23 and have an articulated joint 21<sup>a</sup> 22<sup>a</sup>, whereby to admit of a free movement sidewise with the rail 6 without strain on their connection with the member 23.

After the rail 6 has been shifted laterally in line, either with the main or side track sections, the operator by bringing the rock-lever down to a horizontal position at either side through the medium of the lever 24<sup>a</sup> will, through the medium of the rods 21 22, force the plates 19 19 beyond the ends of the rail 6 and over the ends of the adjacent main or side rails, as clearly shown in Fig. 1, thereby locking the rail 6 and shifting rails in a fixed position.

When it is desired to shift the rail 6, the lever 24<sup>a</sup> is swung up to a vertical position, which causes the plates 19 19 to clear the ends of the switch-rail and the main or siding rail member.

From the foregoing description, taken in connection with the accompanying drawings, it is thought the advantages of my improvement will readily appear.

It will be noticed the arrangement of the

parts is such that the use of guard-rails and frogs is entirely dispensed with.

By arranging the switch operating and lock lever mechanisms as described but a single lock will be necessary to lock both levers to their adjusted position, as the switch-lever, when turned to the position shown in Fig. 2, will rest on the lock-lever.

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

1. The combination with the siding-rail 5, main rails 1 and the shifting rails, of the switch-rail, means for swinging it in line with the shifting rails and either of the rails 5 and 1, of a lock means carried on such switch-rail and an operating mechanism for setting such means to lock the ends of the switch-rail to the shifting rail-section and to either the rails 5 or 1 as set forth.

2. The combination with the shifting rail-section and the rails 5 and 1, of the pivoted switch-rail 6; side plates 19, the rock-shaft having a cross member 23, the rods 21 22 connecting such member 23 and the side plates all being arranged substantially as shown and described.

3. The combination with the shifting rail-section and the rails 1 and 5, of the pivoted switch-rail 6, the rock-shaft 24 having a cross member 23, the lock-plates 19; rods 21 22 connecting such member 23, and plates 19, said rods having articulated joints and means for operating the switch and siding rails as set forth.

JAMES R. <sup>his</sup> × DOWNA.  
mark

Witnesses:

GEO. A. EWING,  
N. M. HORTON.