

No. 612,363.

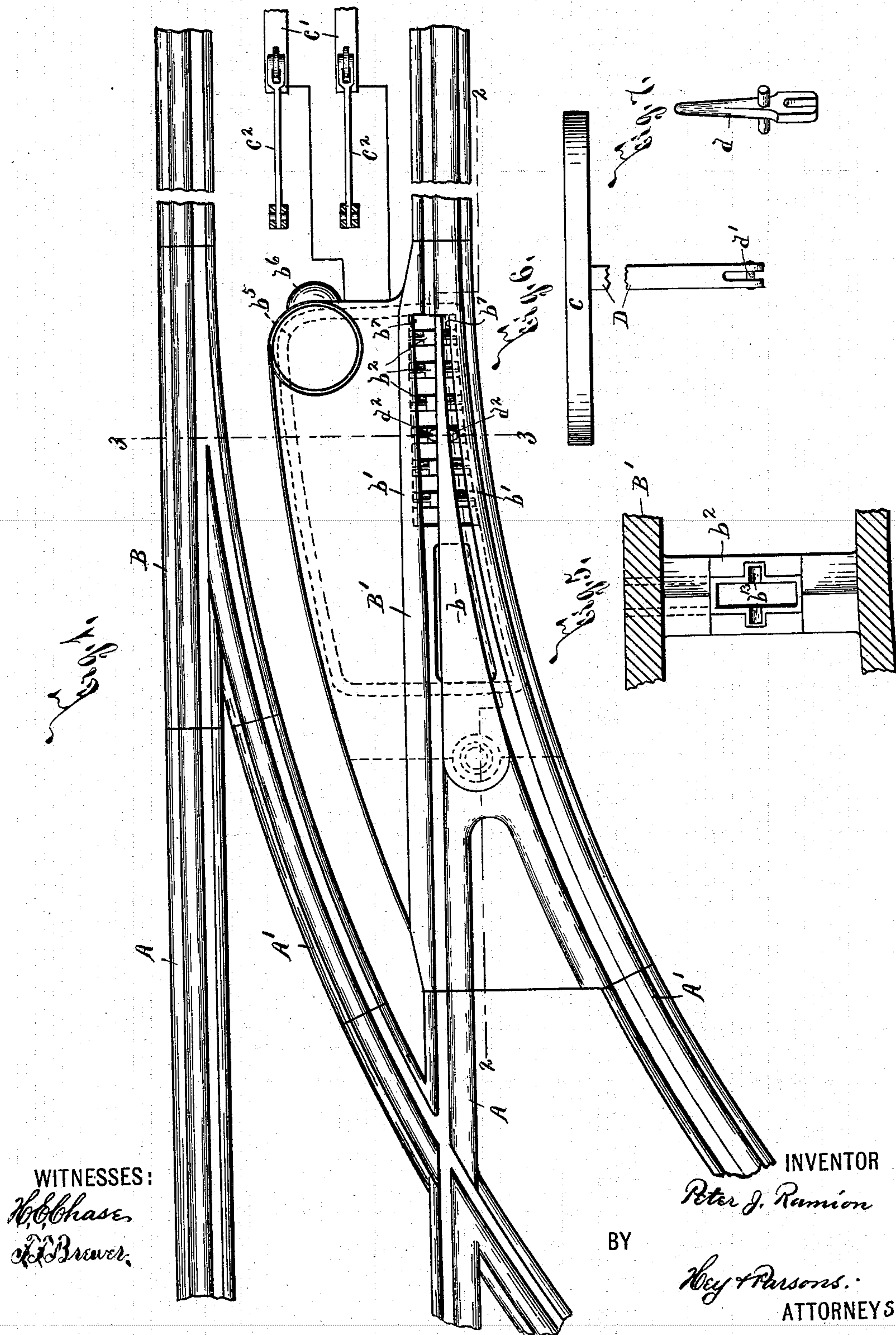
Patented Oct. 11, 1898.

P. J. RAMION.
RAILWAY FROG.

(Application filed Jan. 18, 1897. Renewed Jan. 27, 1898.)

(No Model.)

2 Sheets—Sheet 1.



INVENTOR

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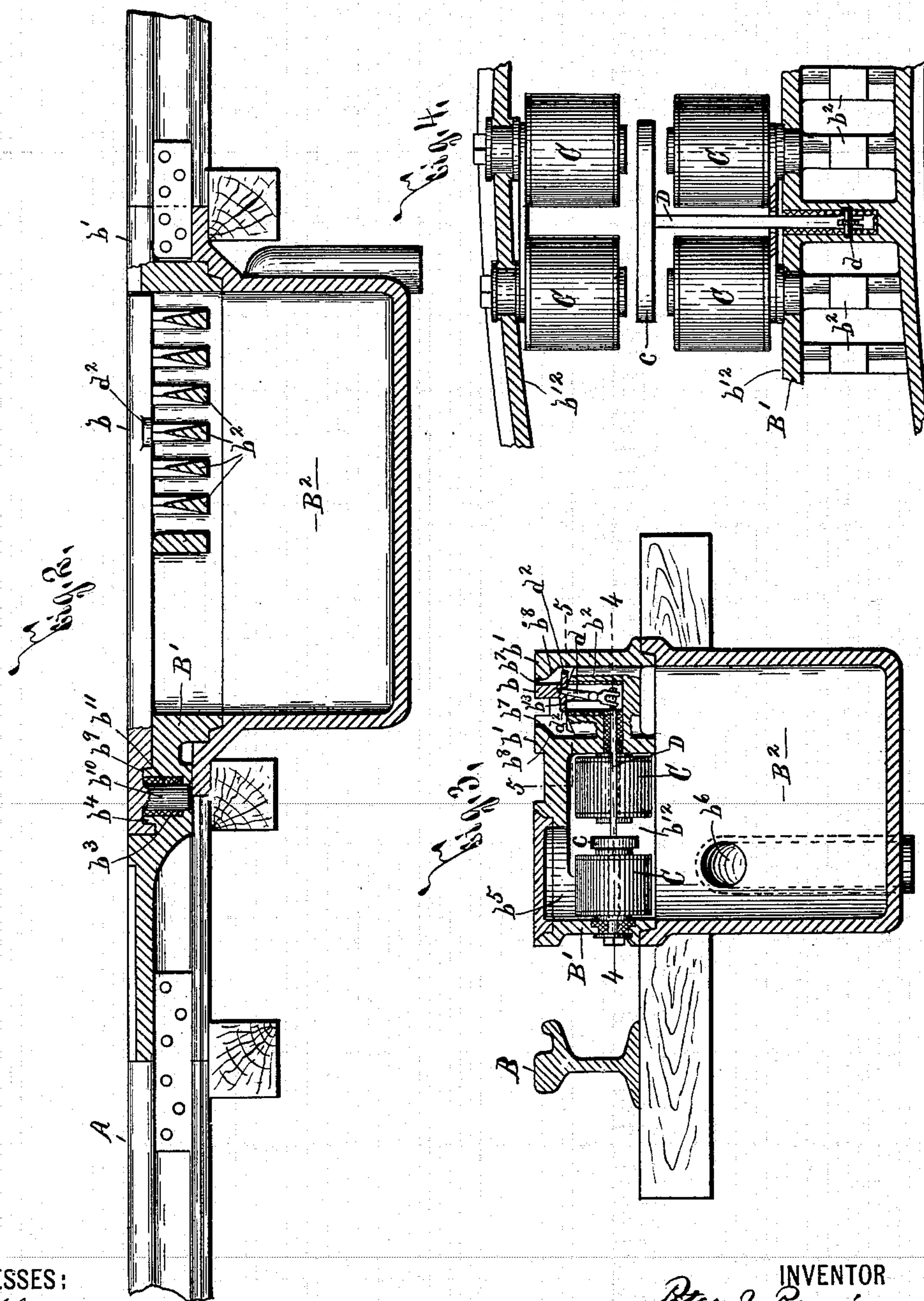
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2 Sheets—Sheet 2.



WITNESSES:

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PETER J. RAMION, OF SYRACUSE, NEW YORK, ASSIGNOR TO MATILDA E. RAMION, OF SAME PLACE.

RAILWAY-FROG.

SPECIFICATION forming part of Letters Patent No. 612,363, dated October 11, 1898.

Application filed January 18, 1897. Renewed January 27, 1898. Serial No. 668,229. (No model.)

To all whom it may concern:

Be it known that I, PETER J. RAMION, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and
5 useful Improvements in Railway-Frogs, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in
10 railway-frogs provided with movable switch-points, and has for its object the production of a simple and practical device of such construction that the accumulation of dirt or other material in the path of the switch-
15 point is prevented; and to this end the invention consists in the general combination, construction, and arrangement of the parts of a railway-frog, all as hereinafter fully described, and pointed out in the claims.

20 In describing this invention reference is had to the accompanying drawings, forming a part of this specification, in which like letters indicate corresponding parts in all the views.

25 Figure 1 is a top plan of a portion of a railway provided with my improved frog. Figs. 2 and 3 are longitudinal and transverse vertical sections taken, respectively, on lines 2 2 and 3 3, Fig. 1. Figs. 4 and 5 are horizontal
30 sections taken, respectively, on lines 4 4 and 5 5, Fig. 3, the sliding bar and rocking lever being omitted in Fig. 5. Fig. 6 is a top plan, partly broken away, of the detached sliding bar and the armature provided thereon; and
35 Fig. 7 is an isometric view of the detached rocking lever.

A A A' A' are the rails of main and branch tracks, and B B' are frogs for uniting said rails. The frog B may be of any suitable
40 construction, and the frog B' is provided with a switch-point b , movable between the diverging rails $b' b'$ of said frog. The body of the frog B' is provided at one end with downwardly-extending openings and with separated bars b^2 , which are interposed between
45 said openings, are arranged transversely between the rails $b' b'$, and are preferably formed integral with said body. The opposite end of the body of the frog B' is provided
50 with a socket b^3 , arranged between the rails $b' b'$, and with an annular upwardly-project-

ing flange b^4 , encircling the upper end of the socket b^3 . The upper faces of the bars b^2 form the bearing for the free extremity of the switch-point b and are generally provided
55 with substantially flat central portions. The opposite ends of said faces extend beyond the substantially upright longitudinal surfaces of the adjacent faces of the rails $b' b'$, presently described, and are usually inclined
60 downwardly in opposite directions from substantially the plane of the central portions of said faces for facilitating the downward passage of dirt, snow, or other material between the bars b^2 into a suitable chamber B²,
65 which is arranged beneath the frog B' and is detachably engaged with its lower face. The frog B' is provided with a suitable manhole b^5 , and the chamber B² is formed with an overflow-conduit b^6 . The adjacent faces of the
70 diverging rails $b' b'$ are formed with substantially upright longitudinal surfaces b^7 and with longitudinal surfaces b^8 , diverging downwardly from said surfaces b^7 toward the openings between the bars b^2 . The longitudinal
75 surfaces b^7 limit the lateral movement of the free extremity of the switch-point, and the longitudinal surfaces b^8 preferably form cut-outs in the adjacent faces of the rails $b' b'$ for facilitating the downward passage into
80 the chamber B² of dirt, snow, or other material admitted between said rails.

The switch-point b may be supported in any suitable manner between the rails $b' b'$ and is usually pivoted at its rear extremity.
85 The opposite or free extremity of the switch-point b is provided with substantially upright lengthwise sides or surfaces arranged opposite to the longitudinal surfaces $b^7 b^8$ of the rails $b' b'$. As the free extremity of the switch-
90 point b is moved to and fro its substantially upright lengthwise sides or surfaces engage the longitudinal surfaces b^7 , and are thereby prevented from engaging the longitudinal
95 surfaces b^8 , which are arranged at an angle with said lengthwise sides or surfaces. I preferably provide the lower face of the rear or pivoted extremity of the switch-point with an annular recess b^9 and a depending spindle
100 b^{10} , arranged concentric with said recess. The spindle b^{10} is surrounded by a packing-sleeve b^{11} and is journaled in the socket b^3 , and the

recess b^9 receives the annular flange b^4 , surrounding said socket. The described means for connecting the rear or pivoted extremity of the switch-point to the body of the frog is particularly desirable, as it prevents the access of liquid or moisture to the pivot of the switch-point and obviates the undue wear, inefficiency, and annoyance that would result, particularly in cold weather, were moisture free to accumulate around said pivot.

The switch-point b may be moved to and fro between the rails $b' b'$ by hand or by any suitable mechanism; but in the preferable construction of my invention suitable electromagnets C C are connected to said switch-point for effecting the desired movement thereof. The electromagnets C C are usually arranged in a horizontal plane at opposite sides of a common armature c and are suitably supported by the frog in a recess b^{12} , formed in the lower face of its body. Corresponding ends of the coils of the electromagnets are connected to a grounded conductor, as one of the rails A, and their opposite ends are connected to separated electrical conductors or terminals $c' c'$, which may be supported above the rails A A A' A', although they usually consist of bars or strips of metal interposed between the rails A A of the main track in advance of the frog B'. The terminals $c' c'$ are engaged by suitable terminals $c^2 c^2$, which are supported by a vehicle or car (not illustrated) movable along the rails A A A' A', are insulated from each other, and are independently connected to a suitable grounded source of electric energy, as a trolley-wire. (Not illustrated.) When the terminals $c' c' c^2 c^2$ are engaged with each other and either of the terminals $c^2 c^2$ is connected to the grounded source of electric energy, the current is free to pass through the corresponding electromagnet, which is immediately energized and attracts the armature c .

The means for connecting the armature c to the switch-point b may be of any desirable construction, and is here illustrated as a sliding bar D and a substantially upright rocking lever d . The sliding bar D is reciprocally movable through an opening in the body of the frog B', and one of its ends is preferably fixed to the armature c . The opposite end of the sliding bar is formed with a transversely-extending engaging portion or pin d' . The rocking lever d is arranged in a substantially upright opening formed in one of the bars b^2 and is provided with projecting trunnions, which are removably mounted in sockets b^{13} , formed in the opposite side walls of said opening and extending downwardly from the top face of said bar. The upper end of the rocking lever is detachably arranged in a socket in the lower face of the switch-point b , and its opposite end is detachably engaged with the engaging portion or pin d' of the sliding bar D. The entrance of dirt, snow, &c., into the upright opening, in which the rocking lever D is arranged, is prevented by oppositely-arranged

lateral projections d^2 , which are provided upon the switch-point b and close the upper end of said opening during the movement of the switch-point.

The operation of my invention will now be readily understood upon reference to the foregoing description and the accompanying drawings, and it will be readily apparent to one skilled in the art that as the switch-point is moved to and fro, either by hand or by the magnets C C, any dirt or other material resting upon the substantially flat central portions of the bars b^2 is moved sidewise to the downwardly-inclined ends of said bars and the longitudinal cut-outs in the adjacent sides of the diverging rails, and that consequently the movement of the switch-point between the diverging rails $b' b'$ tends to effect the downward passage of any dirt, snow, &c., which is admitted to said frog in proximity to its free extremity and does not immediately pass downwardly between the bars b^2 into the chamber B².

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

1. A railway-frog comprising a body provided with downwardly-extending openings, diverging rails having their adjacent faces formed with longitudinal surfaces diverging downwardly toward said openings, and a switch-point interposed between the rails and having one extremity pivoted and its other extremity movable between the adjacent faces of the rails and formed with lengthwise surfaces arranged opposite to said downwardly-diverging surfaces and at an angle therewith, substantially as and for the purpose described.

2. A railway-frog comprising diverging rails having longitudinal cut-outs in their adjacent faces, a body provided with separated bars arranged transversely between the rails and having their upper faces disposed beneath the upper edges of the cut-outs, and a switch-point interposed between the rails and having one extremity movable upon the upper faces of the separated bars and formed with lengthwise surfaces arranged opposite to the longitudinal cut-outs in the rails and at an angle with downwardly-extending longitudinal surfaces of said cut-outs, substantially as and for the purpose set forth.

3. A railway-frog comprising diverging rails having the upper portions of their adjacent faces formed with substantially upright longitudinal surfaces and longitudinal surfaces diverging downwardly from the former surfaces, a body provided with separated bars arranged transversely between the rails beneath the substantially upright longitudinal surfaces of their adjacent faces and having their opposite ends extended beyond said substantially upright surfaces, and a switch-point interposed between the rails and having one extremity provided with substantially upright lengthwise surfaces and movable upon the up-

per faces of the separated bars between said upper portions of the adjacent faces of the rails, substantially as and for the purpose described.

5 4. A railway-frog comprising diverging rails having longitudinal cut-outs in their adjacent faces, a body provided with separated bars arranged transversely between the rails and having their upper faces disposed
10 beneath the upper edges of the cut-outs, said separated bars having the central portions of their upper faces formed substantially flat and the opposite ends of their upper faces inclined downwardly from substantially the
15 plane of said central portions, and a switch-point interposed between the rails and having one extremity movable upon the central portions of the upper faces of the separated bars toward and away from the downwardly-
20 inclined ends of said faces, the lengthwise sides of the free extremity of the switch-point being movable into and out of engagement with the adjacent faces of the diverging rails and being prevented from engaging down-
25 wardly-extending surfaces of the cut-outs, substantially as and for the purpose specified.

5 5. A railway-frog comprising a body provided with downwardly-extending openings, diverging rails having their adjacent faces
30 formed with longitudinal cut-outs communicating at their lower portions with said openings, and a switch-point interposed between the rails and having one extremity pivoted and its other extremity movable between the ad-
35 jacent faces of the rails, the lengthwise sides of the free extremity of the switch-point being movable into and out of engagement with the adjacent faces of the diverging rails and being prevented from engaging downwardly-
40 extending surfaces of the cut-outs, substantially as and for the purpose described.

6 6. A railway-frog comprising a body provided with downwardly-extending openings, diverging rails having their adjacent faces
45 formed with longitudinal surfaces diverging downwardly toward said openings, and a switch-point interposed between the rails and having one extremity pivoted and its other extremity movable between the adjacent faces
50 of the rails and formed with lengthwise surfaces arranged opposite to said downwardly-diverging surfaces and at an angle therewith; in combination with a receptacle supported beneath the downwardly-extending openings
55 and communicating therewith, substantially as and for the purpose specified.

7 7. A railway-frog comprising diverging rails having their adjacent faces formed with downwardly-diverging longitudinal surfaces,
60 a body provided with separated bars arranged transversely between the rails, and having the central portions of their upper faces formed substantially flat and the opposite ends of their upper faces inclined downwardly
65 from substantially the plane of said central portions, and a switch-point pivoted to the body of the frog and having its free extrem-

ity movable upon the central portions of the upper faces of the separated bars toward and away from the downwardly-inclined ends 70 of said upper faces, said switch-point being formed with lengthwise surfaces arranged opposite to said downwardly-diverging surfaces and at an angle therewith; in combination with a receptacle supported beneath the 75 separated bars, substantially as and for the purpose specified.

8. A railway-frog comprising a body provided with downwardly-extending openings, diverging rails having their adjacent faces 80 formed with longitudinal cut-outs communicating at their lower portions with said openings, and a switch-point interposed between the rails and having one extremity movable between the adjacent faces of the rails, the 85 lengthwise sides of the free extremity of the switch-point being movable into and out of engagement with the adjacent faces of the diverging rails, and being prevented from engaging downwardly-extending surfaces of the 90 cut-outs; in combination with a receptacle supported beneath the cut-outs and communicating therewith, substantially as and for the purpose set forth.

9. A railway-frog comprising a body pro- 95 vided with downwardly-extending openings, diverging rails having their adjacent faces formed with longitudinal surfaces diverging downwardly toward said openings, and a switch-point interposed between the rails and 100 having one extremity pivoted and its other extremity movable between the adjacent faces of the rails and formed with lengthwise surfaces arranged opposite to said downwardly-diverging surfaces and at an angle therewith; 105 in combination with an armature connected to the switch-point for moving the same, and an electromagnet for actuating the armature, substantially as and for the purpose de- 110 scribed.

10. A railway-frog comprising diverging rails having the upper portions of their adja- cent faces formed with substantially upright longitudinal surfaces, and longitudinal sur- 115 faces diverging downwardly from the former surfaces, a body provided with separated bars arranged transversely between the rails be- 120 neath the substantially upright longitudinal surfaces of their adjacent faces, and having their opposite ends extended beyond said sub- 125 stantially upright surfaces, and a switch-point interposed between the rails and having one extremity provided with substantially up- 130 right lengthwise surfaces and movable upon the upper faces of the separated bars between said upper portions of the adjacent faces of the rails; in combination with an armature connected to the switch-point, for moving the same, and an electromagnet for actuating the armature, substantially as and for the pur- 130 pose specified.

11. A railway-frog comprising diverging rails, separated bars arranged transversely between the rails, one of the bars being pro-

vided with a substantially upright opening having its side walls formed with sockets extending downwardly from the top face of said bar, a switch-point interposed between the
5 rails and having one extremity pivoted, and its other extremity movable upon the separated bars, a rocking lever connected to the switch-point and formed with projecting trunnions mounted in said sockets, an armature
10 connected to the rocking lever, and electromagnets for actuating the armature, substantially as and for the purpose specified.

12. A railway-frog comprising diverging rails, separated bars arranged transversely
15 between the rails, one of the bars being provided with a substantially upright opening, a switch-point interposed between the rails and having one extremity pivoted and its other extremity movable upon the separated
20 bars, and formed with lateral projections for

closing the upper end of the substantially upright opening, a rocking bar supported in said opening and having its upper end detachably engaged with the lower face of the switch-point, a reciprocating rod having one end provided with an armature and its opposite end detachably engaged with the rocking lever, and electromagnets for actuating the armature, substantially as and for the purposes set forth. 25 30

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 14th day of January, 1897.

PETER J. RAMION.

Witnesses:

E. A. WEISBURG,
K. H. THEOBALD.