(No Model.) 3 Sheets—Sheet 1.

D. M. CHURCH.

RAILWAY SWITCH.

No. 488,161. Patented Dec. 13, 1892.

Fig. 1.

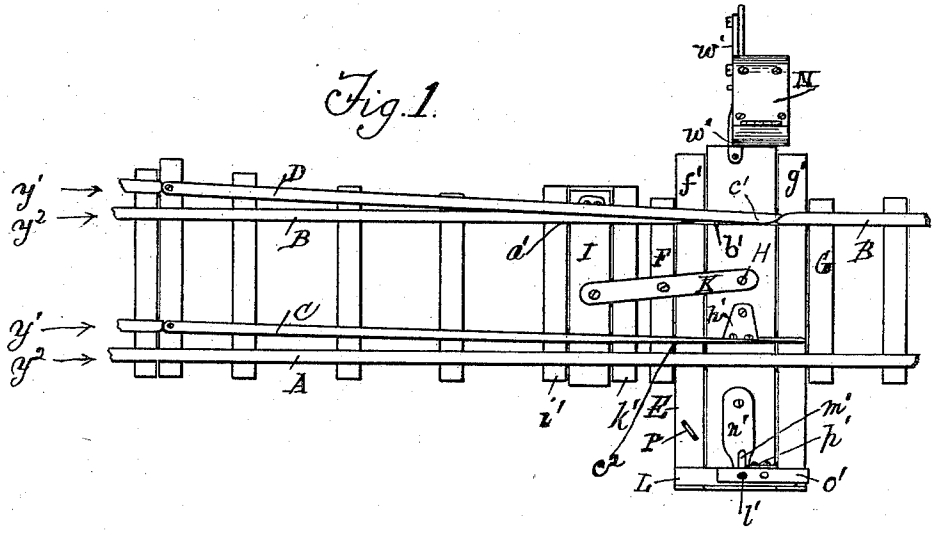
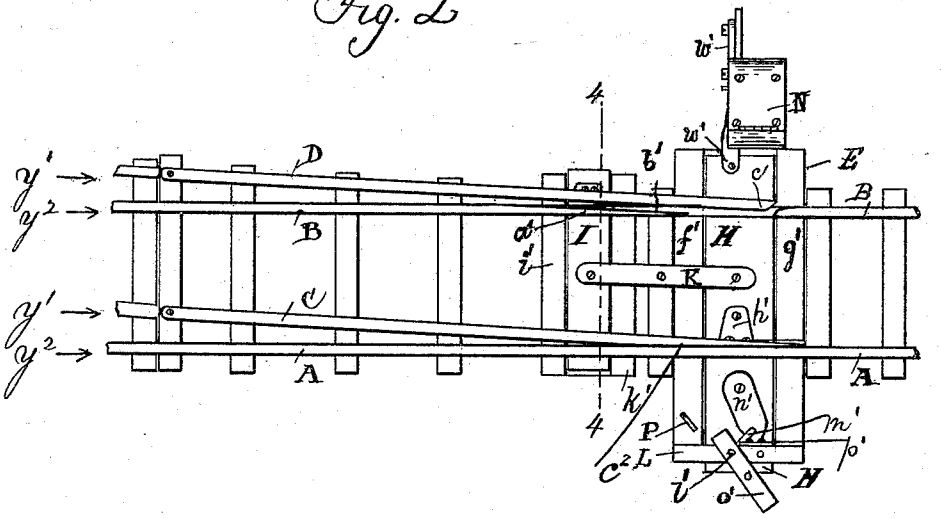


Fig. 2.



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(No Model.) 3 Sheets—Sheet 2.

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Fig. 3.

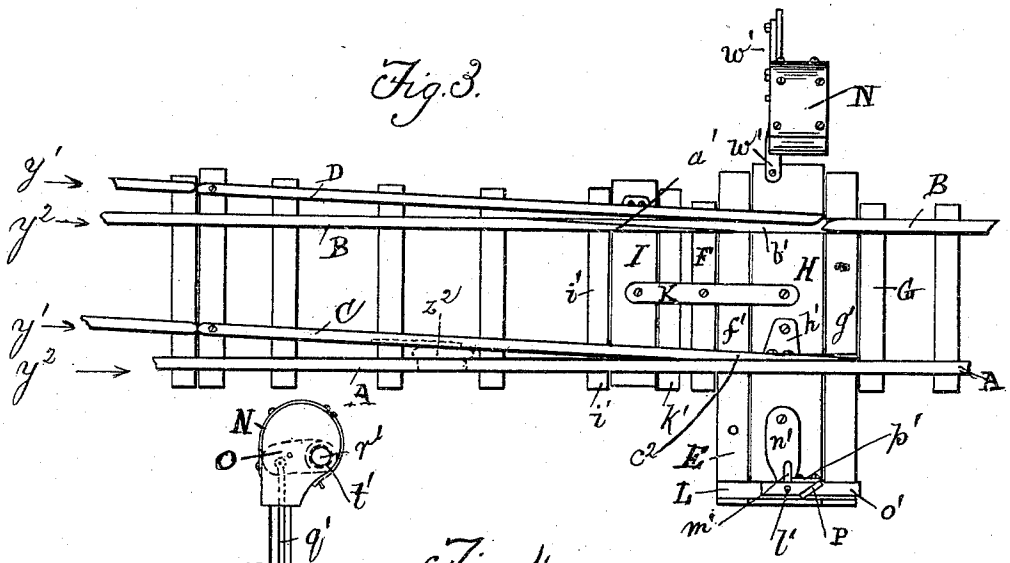


Fig. 4

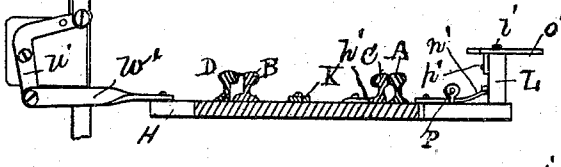


Fig. 5

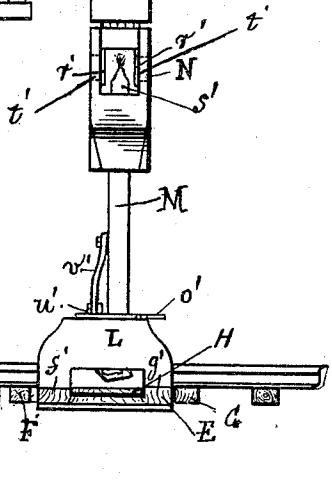
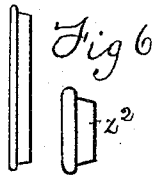


Fig 6



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RAILWAY SWITCH.

No. 488,161. Patented Dec. 13, 1892.

FIG. 7

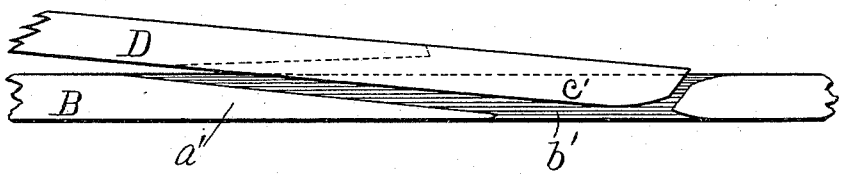

FIG. 8

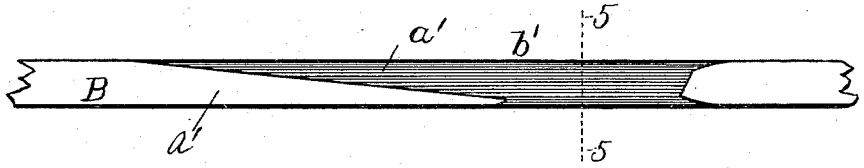

FIG. 8*

FIG 7

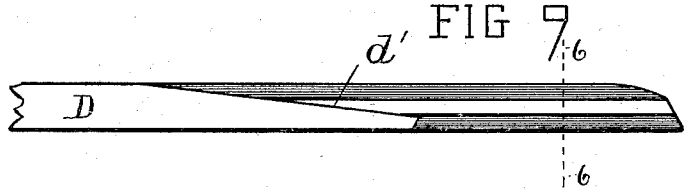

FIG 7*

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UNITED STATES PATENT OFFICE.

DWIGHT MADISON CHURCH, OF WILLIMANTIC, CONNECTICUT.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 488,161, dated December 13, 1892.

Application filed February 18, 1892. Serial No. 422,013. (No model.)

To all whom it may concern:

Be it known that I, DWIGHT MADISON CHURCH, of Willimantic, in the county of Windham and State of Connecticut, have invented certain new and useful Improvements in Railway-Switches; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention in railway-switches relates to a novel construction and arrangement with respect to the stationary rails of slides moving in opposite directions and to which severally a switch-rail is attached, one of such switch-rails moving inward as the other moves outward, and to other devices all of which will appear from the following description.

In the accompanying drawings, Figure 1 illustrates a plan view of a portion of a main railway-track and the switch-rails used in connection therewith, the parts being in their proper positions when the main track is continuous. Fig. 2 is a view similar to Fig. 1, but showing the different parts in the position they will assume when the switch is open or when the siding is in connection with the main track. Fig. 3 is a view similar to Fig. 1, but showing the different parts in their proper positions after the switch has been opened by means from the locomotive, and also showing such means in proper position to close the switch or make the track continuous. Fig. 4 is a transverse section through the line 4 4 of Fig. 2. Fig. 5 is an edge view of the parts in the position shown in Fig. 2. Fig. 6 represents edge views of one of the train traction-wheels and a thick flanged wheel for operating the switch-rails for the purpose of illustrating the relative widths of flanges of the two wheels; Fig. 7, a plan, enlarged, of part of the outer switch-rail and of its adjacent main rail; Fig. 8, a similar plan of such main rail; Fig. 8*, a cross-section through line 5 5 of Fig. 8; Fig. 9, an under side view of that portion of the switch-rail shown in Fig. 7; and Fig. 9* a cross-section through the line 6 6 of Fig. 9, showing a top or plan view.

Similar letters represent like parts in all the figures.

A and B are the two main stationary rails of a railway-track, and C D are the two switch-rails, one of which C is pivoted between the rails A and B, and the other D is pivoted outside of the rail B. When the rails are in the position shown in Fig. 1, the switch is closed and the main track is continuous with a portion of the inner edge of rail D at and near its free end continuous with the inner edge of the main rail B, and to meet this requirement a small portion of the rail B is cut away, as shown at a' and b', the cut-away portion at a' being a diagonal cut from the outer to the inner side of the head and down to the foot of the rail B, and the cut-away portion b' extending entirely across the rail B down to but not through the foot of the same to enable the head of the rail D to cross the foot of the rail B and a small portion c' of rail D to be continuous with the inner edge of the rail B. A portion of the foot of the rail D is also cut away, as at d', to enable said rail to ride over and rest upon the foot of rail B and to assume the position as shown in Fig. 1. The outer edge of the rail C at and near its free end is also cut away diagonally, as shown at c^2, said end tapering off gradually to nearly a chisel edge to enable such cut-away edge to abut against and conform with the inner edge of the rail A and to constitute a continuous inner edge of the rails C and A when the parts are in the positions represented in Fig. 2.

E is a plate or block extending transversely across and under the rails A B, under the ends of the switch-rails C D, and inclosed and adapted to slide between two parallel fixed sleeper-bars F and G. The plate or block E is provided with parallel raised flanges f' and g', forming guides in which a slide H is adapted to play. To this slide H the rail C, near its free end, is secured, as shown at h'.

I is a sliding plate or block extending under the rails A B C D a little farther back than the slide H, working between fixed guides i' k', similar to G H and parallel with said slide E.

K is a lever of the first class, pivoted upon a fixed fulcrum between the slides E and I, with the ends of said lever pivoted, respectively, to said slides.

The above construction is for the purpose of causing the slide I to move in the opposite direction from the slide H.

The rail D is secured to the slide I at a point upon said slide so that said rail D will be separated from the rail B when the rail C is in contact with the rail A, as shown in Fig. 2.

From the above it will be seen that when the rail C is drawn against the rail A by the slide H the slide I will move in the opposite direction from said slide H, causing the rail D to separate from the rail B, as shown in Fig. 2. The main track will then be closed, the switch will be open and in proper position for trains running onto the switch or siding; but if the rail C be moved away from the rail A by the slide H the slide I will be forced by the lever K to move toward and against the rail B, as shown in Fig. 1, and the switch will then be closed, while the main track will be continuous and open for moving trains.

L is a standard extending upward from the slide E outside of the rails and over the slide H. Extending vertically through said standard and over the slide H is a rock-shaft l', having a crank m' at its lower end, which engages with a swinging arm n' of the slide H. The upper end of the shaft l' is provided with a crank o', by which said shaft may be rocked, and consequently the crank m' may be also rocked and the slide H moved back and forth through the connecting swinging arm n'. A stop p' limits the movement of the crank o' and consequently of the slide H and its connected parts.

M is a standard on the opposite side of the rails from the standard L, having vertical guideways, in which a rod or bar q' is adapted to slide. The upper end of said rod or bar extends into a white or light-colored lantern and signal-case N, and is pivoted to one end of a lever O, which is fulcrumed to said case within the same; and extending outward from the free end of said lever on each side of the same is a signal r', (of glass, cloth, or any translucent material,) preferably colored, and when said free end of the lever is lowered said two glasses may for night use inclose between them a lamp or other light-producing article s', which is inclosed in the case N. Two openings t' t', one on each side of the case and opposite each other and opposite the lantern or light, serve to make the signals visible from the tracks at night, and by day the contrast of color between the case and the signals or the openings t' t' indicate the position of the switch. The rod or bar q' is connected with the slide H by means of an elbow-lever u', which is pivoted to the standard M, a link v' connecting said rod and elbow-lever and a link or bar w', connecting the opposite arm of the lever u' with the slide H.

When at night the parts are in the position shown in Fig. 1, with the main track clear, the free end of the lever O and the signal-glasses r' will be raised above the light s', and said light not modified by any color or shade will be visible from the track. When, however, the slide H has been moved in a direction away from the signal-standard by means above described, the rails and other parts will be in the positions shown in Figs. 2 and 4. The colored signal-glasses r' will cover the lamp s', so that a colored light will be visible from the tracks to indicate that the main track is closed and that the switch is open. If the slide H with its connected parts be slid half-way in either direction, a portion of the colored signal-glasses and a portion of the unscreened light will be visible, thus indicating that the switch is only partly opened or closed.

P is a pin, which is adapted to pass through a hole in the slide E into a fixed plate or block beneath the same, by which said plate may be firmly locked when the slide H and its connected parts are to be moved, as above described. When, however, it be desired to have the switch operated from a device on a train or locomotive moving in the direction of the arrow y' or y^3, the pin P is removed from the hole in the slide E and the plate beneath and inserted through a hole in the crank O'. If the rails and other parts then be in the positions shown in Fig. 1—that is, with the main track open and the switch or siding closed for moving trains—the engineer on the train moving on the side tracks C D in the direction of the arrows y' can lower a thick flanged wheel—such as z^2 in Fig. 6—between the tracks B and D, and the flange of said wheel will spread the rail D outward, and as the slide H will be keyed to the slide E by the pin P, and said slide E is free to move, said two slides H and E will move together through the instrumentality of the slide I and lever K, and the switch-rail C will be drawn against the rail A and the parts will be in the positions shown in Figs. 3 and 4, with the signal-glasses displayed from the casing N. If the tracks and other devices be in the positions shown in Fig. 3 and a train be moving along the main track or rails A B in the direction of the arrows y^2, the engineer may lower the thick flanged wheel z^2 (see dotted lines in Fig. 3) between the rails A and C, and the flange of said wheel will separate the rail C from the rail A, and through the instrumentality of the slides H and E, lever K, and slide I will draw the rail D close to the rail B, closing up its cut-away portions a' and b', and thus making it a continuous main track for trains, as shown in Fig. 1.

One object of having the parts E arranged to slide when not locked and when so slid to carry with it the slide H (which in such case is locked or pinned fast to it) is that when not locked together slide H may be worked by hand, if needed; but when locked together and slide E is not fastened to the bed a passing train or the small thick-flanged wheel on the locomotive will move both the connected slides together. The arrangement of this double slide also better protects them

from snow and ice and allows them to work smoother.

Both of the slides H and E, I make of iron or steel. Jointly they are therefore quite heavy. Therefore, when the hand-lever is pinned and locked against meddlers or tramps by a fastening device—say, for instance, a common padlock, such as is shown in my Patent No. 464,061—the whole weight of these combined slides is too great for any person to slide them; but a passing train by means of the flanges on the wheels is able to move both slides together and thus operate the switches.

What I claim as new, and desire to secure by Letters Patent, is—

1. A railway-switch consisting of two switch-rails pivoted, respectively, one between and one outside of the main rails, and slides severally connected to such switch-rails and also connected severally to the opposite arms of a lever having a fixed fulcrum, whereby the bringing of one of said switch-rails toward its adjacent main rail will separate the other switch-rail from its next adjacent main rail, all as set forth.

2. The combination of the main rail A, the rail B, having the cut-away portions a' b', the pivoted switch-rail C, cut away, as at c^2, the pivoted switch-rail D, cut away, as at d', and a lever connecting these switches C D and adapted to separate the rail C from the rail A and at the same time to draw the rail D against the rail B and close up the cut-away portions a' and b' in the rail B, thus forming a continuous main track, and whereby the separation of rail D from the rail B will bring the rail C toward or in contact with the rail A, all as and for the purposes set forth.

3. In combination with the two switch-rails, two slides I and H, connected, respectively, to said rails and adapted to move parallel with each other, but in opposite directions, and a lever connecting said slides, all arranged and operating substantially as described.

4. In combination with the two main rails and the switch-rails pivoted and located as described, the slide I, secured to one switch-rail, another slide adapted to move parallel with the slide I and secured to the other switch-rail, a lever of the first class, each arm of which is pivoted, respectively, to one of the two slides, all arranged and operating substantially in the manner described.

5. The combination, with the parallel guideways F G, of the double slide E H, removable means for securing the slide E to the road-bed, and removable means for securing the two slides E and H together, whereby the slide H may move independently of the slide E, and also whereby both of said slides E and H may move coincidently and together, all substantially as and for the purposes set forth.

6. The combination of the slide H and parallel guideways for said slide, with a yoked standard extending over said slide, the rock-shaft l', cranks m' and o', swinging arm n', the two pivoted switch-rails, one of which is secured to the slide H, the slide I, lever K, connecting the slides H and I, as described, and said slide I being connected with the other switch-rail, all as set forth.

7. In combination with two switch-rails, simultaneously actuated to move one toward and one away from its respective adjacent main rail, a signal-lever having connections therewith, substantially as described.

DWIGHT MADISON CHURCH.

Witnesses:
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FRANK W. PAYNE.