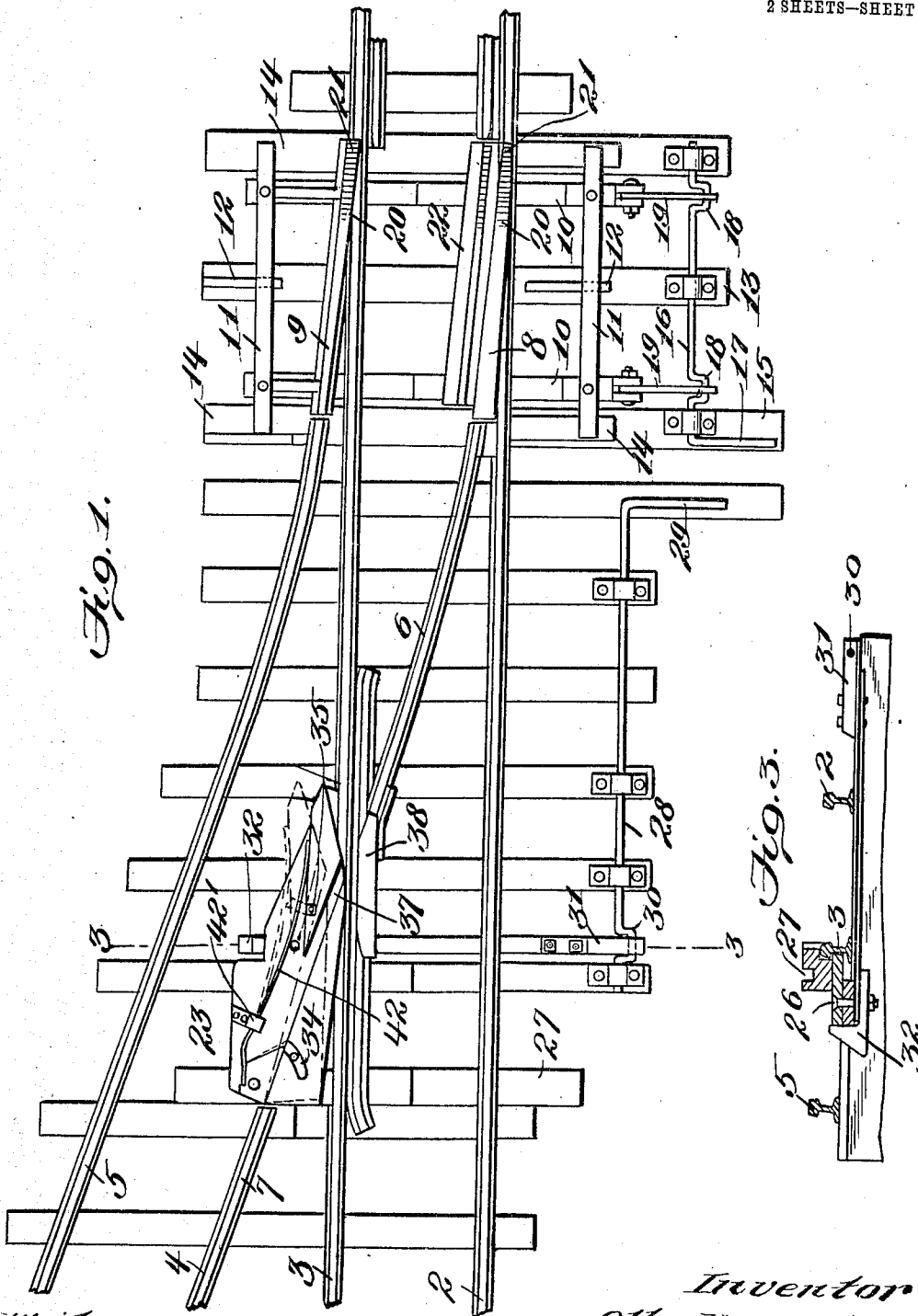


No. 872,178.

PATENTED NOV. 26, 1907.

O. HARPOLD.
RAILWAY SWITCH.
APPLICATION FILED JULY 11, 1907.

2 SHEETS—SHEET 1.



Witnesses
Ed. Kessler
J. B. Keeler

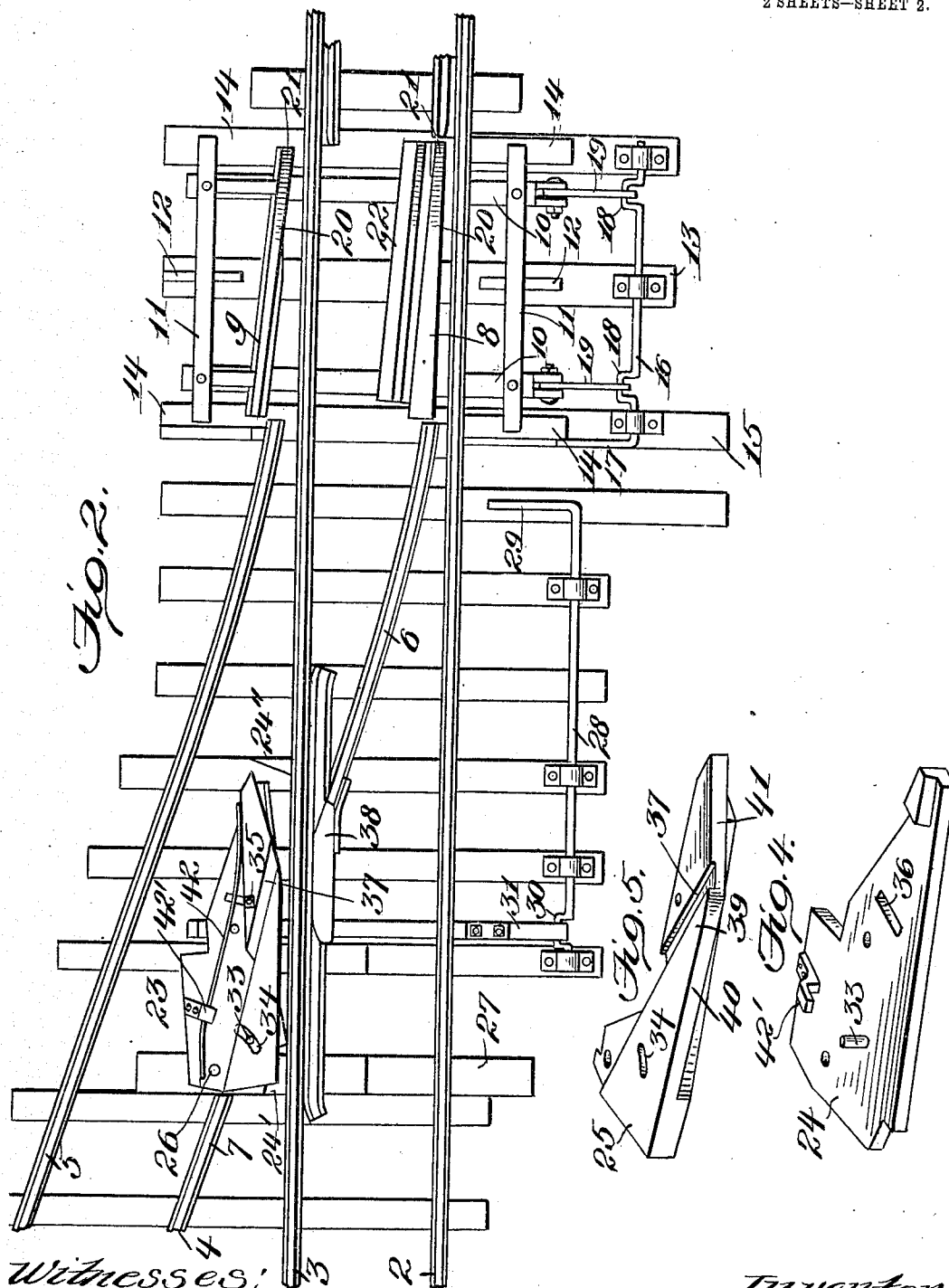
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Otto Harpold
By James L. Norris
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2 SHEETS—SHEET 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

OTTO HARPOLD, OF ROSEDALE, INDIANA.

RAILWAY-SWITCH.

No. 872,178.

Specification of Letters Patent.

Patented Nov. 26, 1907.

Application filed July 11, 1907. Serial No. 383,214.

To all whom it may concern:

Be it known that I, OTTO HARPOLD, a citizen of the United States, residing at Rosedale, in the county of Park and State of Indiana, have invented new and useful Improvements in Railway-Switches, of which the following is a specification.

This invention relates to railway switches.

A switch involving my invention is strong in construction, capable of long use without undue wear; it permits an engine or string of cars to pass from a main line on to the siding or branch line with perfect safety; by it a running switch can be made in a short space of time between the engine and cars.

The invention possesses other objects and advantages which, with the foregoing, will be set forth at length in the following description wherein is disclosed in detail that form of embodiment of the invention which I have selected for illustration in the accompanying drawings forming a part of this specification, this being for the purpose of enabling those skilled in the art to practice the invention. Certain variations may be made within the scope of my claims succeeding said description.

Referring to said drawings: Figure 1 is a top plan view of a switch embodying my invention and showing the parts positioned to permit the passage of a vehicle or train from the main line on to a siding or branch line. Fig. 2 is a like view with the parts of the switch thrown away from the main rails. Fig. 3 is a cross-sectional view on the line 3—3 of Fig. 1. Fig. 4 is a detail view in perspective of a swinging plate or carrier, and Fig. 5 is a like view of a switch block supported in practice by said plate or carrier. Like characters refer to like parts throughout the several figures of the drawings.

The main rails are designated in a general way by 2 and 3 respectively, and the branch rails by 4 and 5 respectively. In the present case the branch rail 4 is divided into sections 6 and 7, the section 6 being located between the main rails 2 and 3, and the section 7 beside the said main rails and at one side of the main rail 3. These rails are fastened to the ties in the customary manner. I have shown two switch rails or points as 8 and 9 which are adapted to cooperate with the siding or branch rails 4 and 5 respectively. These switch rails or points 8 and 9 are fastened suitably to the companion cross-bars 10 disposed under the main rails 2 and 3 and ex-

tending outwardly beyond the sides of the latter. At places outside of the said main rails 2 and 3 the bars 10 are connected by parallel strips 11, said bars 10 and their connecting strips 11 presenting a skeleton-like or open slide for carrying the two switch rails or points 8 and 9. The said strips 11 are grooved between their ends to receive guide ribs as 12 fastened suitably to or forming a part of the tie 13. The ends of the strips or bars 11 travel upon the upper surfaces of blocks as 14 fastened to the ties 15 and abutting at their inner ends against the main rails. The upper surfaces of the bars 10 make contact with the under surfaces of the main rails 2 and 3. By virtue of the described construction the only movement of the said slide composed of the bars 10 and 11 is one which is exactly straight across or transversely of the main track made up of the two rails 2 and 3.

The several ties 13 and 15 are provided with suitable bearings for the shaft 16, said shaft having an operating lever or arm 17 at one end by which it can be rocked and having between its ends the cranks 18 connected by links as 19 with the bars 10. By operating the lever or arm 17 the bars 10 can be moved transversely of the main track to move the switch rails or points 8 and 9 toward and from the rails 2 and 3 respectively, or into and out of coincidence with the siding or branch rails 4 and 5 respectively. The heads or upper portions of the switch rails or points 8 and 9 are flanged as at 20 to overlie the tops of the main rails 2 and 3 when said switch rails or points are in a position to direct a vehicle from the main track or line on to the branch track or line, and to facilitate the entrance of the wheels on to said switch rails 8 and 9, the latter are upwardly inclined as at 21 at their entering ends.

In Fig. 1 the switch rails or points 8 and 9 are in a position to initially direct the wheels of a vehicle from the main rails 2 and 3 on to the siding or branch rails 4 and 5, while in Fig. 2 said switch rails 8 and 9 are wholly out of contact with the main rails so as to permit the travel of a vehicle, whether it be a train or not, along the main line, as it approaches the switching mechanism. A guard rail is shown at 22, and said guard rail is arranged in proximity to the switch rail or point 8 and it may be connected therewith and also with the bars 10 by means of spikes, bolts, or in any other desirable way.

Between the sections 6 and 7 of the siding rail 4 there is mounted for shiftable movement a switch member such as that denoted in a general way by 23, and said switch member 23 comprises in its construction a body or carrier as 24 and a spring-actuated plate as 25 which constitutes the operative portion of said switch member 23. The carrier or body 24, which may consist of a plate, is pivotally mounted, while the same statement applies to the plate or block 25, and a pivot as 26 may be employed for pivotally uniting the two plates together and for pivotally connecting the lower plate 24 to a tie as 27. A rock-shaft is shown at 28, said rock-shaft having an arm as 29 at one end by which it may be turned. The said rock-shaft 28 is supported by bearings on several of the ties and is provided near the end opposite that equipped with the hand-lever or arm 29 with a crank as 30 to which a rod as 31 is suitably jointed, the rod extending under the main rails 2 and 3, also under the plate 24, and being bolted or otherwise suitably connected to the latter. To said rod 31 is connected a hook-like bracket as 32, the hook portion of which engages against one of the side faces of the plate 24. The plate 24 is shown as provided with a vertical pin or stud 33 adapted to extend through a guide slot as 34 in the upper plate or block 25, and the latter may be equipped with a pin as 35 to travel in a guide slot as 36 in said lower plate 24. When the switch member 23 is in a position to effect the transfer of a vehicle or train from the main line on to the siding or vice versa, the plate or section 24 of said switch member 23 will be situated between and in contact with the blocks or lugs 24' and 24'' which effectually prevent end-thrust of the switching member at such time.

Under normal conditions the switch member 23 is operated by the manipulation of the lever or arm 29 acting on said switch member 23 through the intermediate parts. The block 25 is provided on its upper side with a diagonal groove as 37 to receive the flanged portion of a vehicle wheel after the same leaves the side rail section 6, the wheel being guided into said groove 37 from said rail section 6 by a guide member as 38. When the switch member 23 is in its operative position, as indicated by full lines in Fig. 1, the flanged portion 39 thereof overlies the adjacent main rail 3 and at this time one end of the groove 37 will be in register with the rail section 6. By throwing the lever 29 from the position in which it is shown in Fig. 1, over or through an arc of 180° the switch member 23 will be moved out of operative relation with the rail section 7 as shown in Fig. 2. There are times when from some cause or other the switch member 23 may not have been shifted after a vehicle has passed from the main line on to the branch line or siding. In such a case as

this the switch member 23 will occupy, as will be understood, the position shown in full lines in Fig. 1. No injury can result from this owing to the fact that the block 25 is capable of shifting movement with respect to the carrying body 24. Should a train or vehicle approach the switch member 23 from opposite sides thereof, the foremost wheel thereon on the rail 3 will strike the switch member 25 overlying the rail 3 and will shift said member 25 laterally. To facilitate this operation the outer face of the member 25 is provided with converging angular faces 40 and 41 adapted to be engaged by such forward wheel for the purpose indicated; that is to say, to move the block or member 25 sideways out of the path of the vehicle in case the member 23 should not have been shifted.

I prefer that the member or block 25 be spring actuated, and any suitable type of spring may be employed for this purpose. I have shown a leaf spring as 42 one end of which is suitably fastened to the body or plate 24, while the free end thereof engages against one side of the block 25 for the purpose of holding said block in its normal working position and also for the purpose of returning it to such normal position after it has been shifted in the manner pointed out. Said spring bears between its ends against the hook-like plug 42' on the plate 24. In Fig. 1 I have shown by dotted lines the member 25 as shifted in the manner set forth, it being assumed that this shifting is brought about by a vehicle.

What I claim is:

1. In a switch, the combination of main and branch rails, one of the branch rails being divided, and a switch member between the sections of said divided branch rail and comprising a pivotally mounted body provided with a member pivotally mounted thereon, movable therewith, and constituting the operative portion of said switch member.

2. In a switch, the combination of main and branch rails, one of the branch rails being divided, a switch member between the sections of said divided branch rail and comprising a pivotally mounted body provided with a pivotally mounted member constituting the operative portion of said switch member, and a spring to act against said pivotally mounted member to normally hold the same in its working relation.

3. In a switch, the combination of main and branch rails, one of the branch rails being divided, a switch member between the sections of said divided branch rail and comprising a shiftable mounted body provided with a member jointed thereto, constituting the working part of the switch member and provided with a flange to overlie one of the main rails.

4. In a switch, the combination of main

and branch rails, one of the branch rails being divided, a switch member between the sections of said divided branch rail and comprising a shiftably mounted body provided with a member shiftably thereon, constituting the working part of the switch member and provided with a flange to overlie one of the main rails, the side of said latter member provided with said flange being provided with angular converging faces.

5 5. In a switch, the combination of main and branch rails, one of the branch rails being divided, a switch member between the sections of said divided branch rail and comprising a shiftably mounted body provided with a member shiftably thereon, constituting the working part of the switch member and provided with a flange to overlie one of the main rails, the side of said latter member provided with said flange being provided with angular converging faces and also having a diagonally-disposed groove.

10 6. In a switch, the combination of main and branch rails, one of the branch rails being divided, a switch member between the sections of the divided branch rail, said switch member comprising two swinging parts, one carried by the other, and a pivot uniting the two parts of the switch member

and also constituting the center for the carrying part of said switch member.

7. In a switch, the combination of main and branch rails, one of the branch rails being divided, a switch member between the sections of the divided branch rail, shiftably mounted and having a shiftable member to overlie one of the main rails, two switch rails coöperative with said switch member and with the adjacent ends of the branch rails, and a slide carrying the switch rails.

8. In a switch, the combination of main and branch rails, one of the branch rails being divided, a switch member between the sections of the divided branch rail, shiftably mounted and having a shiftable member to overlie one of the main rails, two switch rails coöperative with said switch member and with the adjacent ends of the branch rails, a slide carrying the switch rails, said slide being grooved, and stationary ribs to fit the grooves of the slide.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

OTTO HARPOLD.

Witnesses:

GEORGE L. LANEY,
HARMON L. CONNERLEY.