

No. 644,264.

Patented Feb. 27, 1900.

J. C. STURM.
RAILROAD SWITCH.

(Application filed Aug. 11, 1899.)

(No Model.)

2 Sheets—Sheet 1.

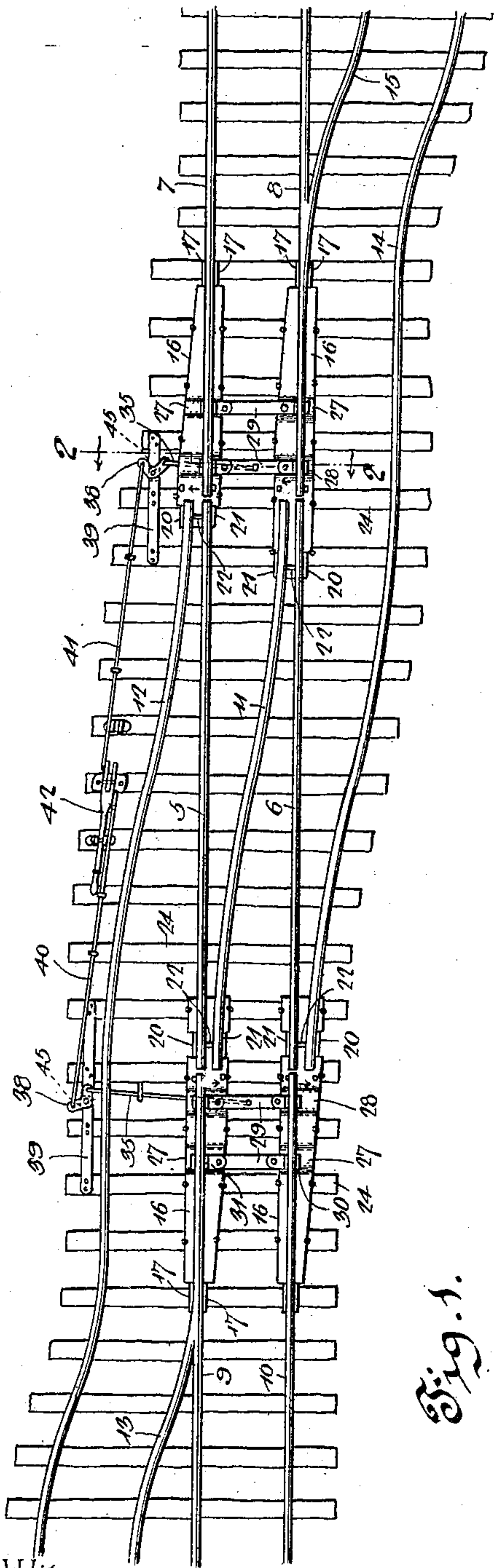


Fig. 1.

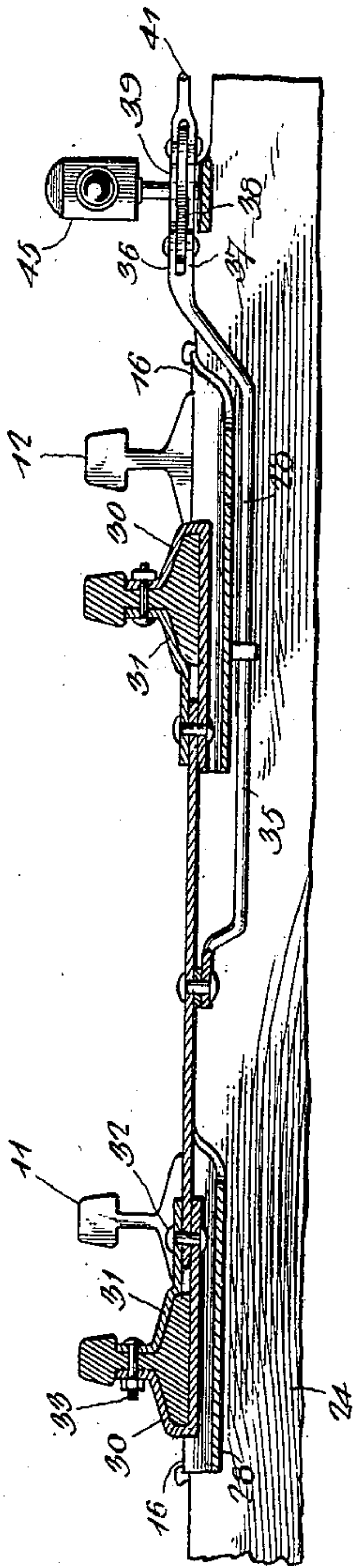


Fig. 2.

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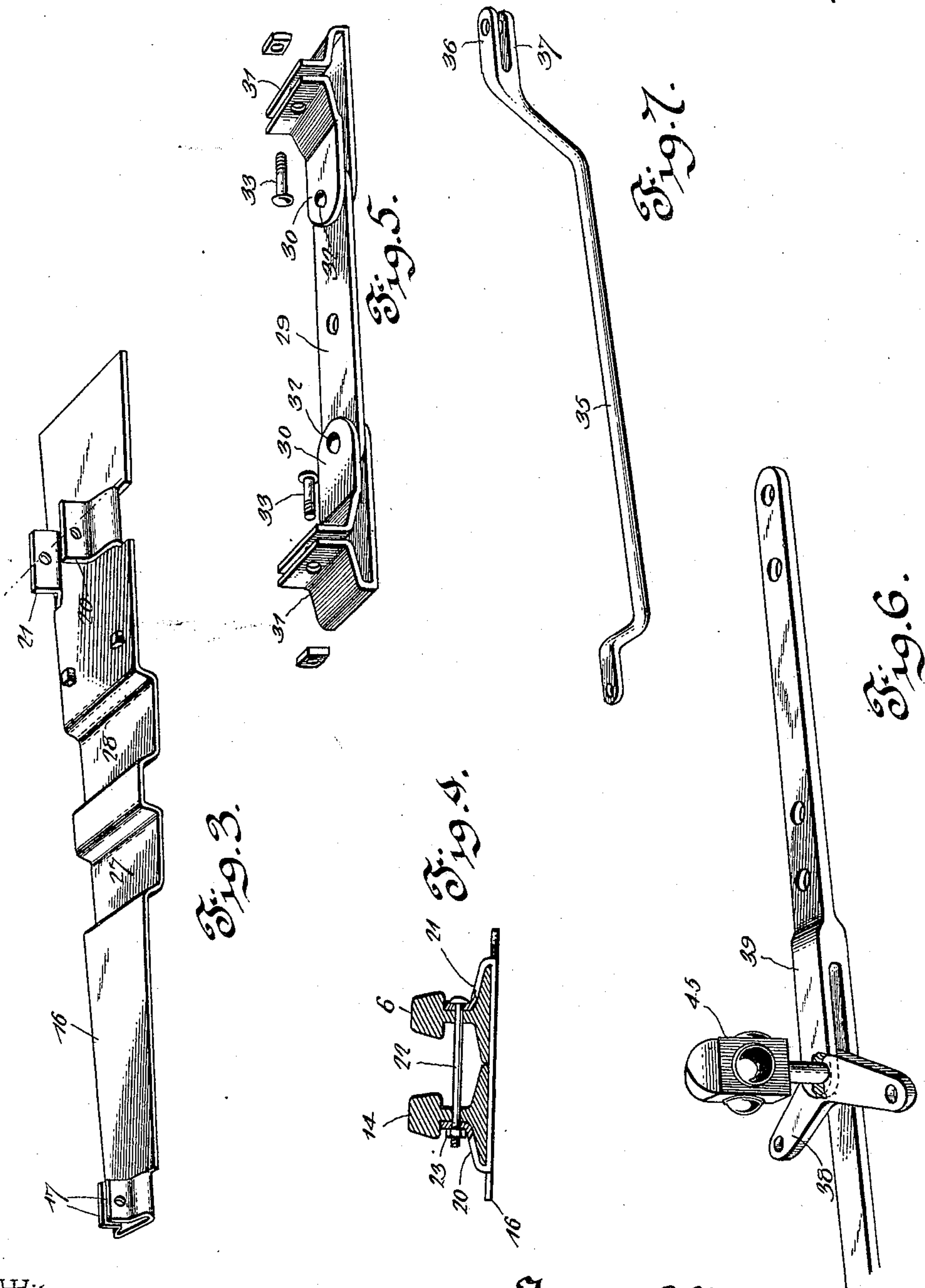
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UNITED STATES PATENT OFFICE.

JAMES C. STURM, OF KNOTTSVILLE, WEST VIRGINIA, ASSIGNOR OF ONE-HALF TO WILLIAM JENNINGS.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 644,264, dated February 27, 1900.

Application filed August 11, 1899. Serial No. 726,904. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. STURM, a citizen of the United States, residing at Knottsville, in the county of Taylor and State of West Virginia, have invented a new and useful Railroad-Switch, of which the following is a specification.

This invention relates to railway-switches; and it has for its object to provide a construction in which the usual frogs will be eliminated and also one in which the parts will be held firmly in their proper positions and in which the movable portions may be readily operated.

A further object of the invention is to provide simple and efficient mechanism for transmitting motion to the several parts of a single or double switch.

In the drawings forming a portion of this specification and in which similar numerals of reference designate corresponding and like parts, Figure 1 is a plan view showing a main trackway with a switch at each side and which switches are adapted for simultaneous operation. Fig. 2 is a section on line 2 2 of Fig. 1 and showing the mutual connection between the movable portions of the rails. Fig. 3 is a perspective view showing the extended chair. Fig. 4 is a section on line 4 4 of Fig. 3 and showing the ends of the fixed rails seated in their chair. Fig. 5 is a perspective view of the chairs of the movable rails and their connecting-plate. Fig. 6 is a perspective view of a bell-crank lever and its supporting-plate as showing the signal-lantern carried by the lever. Fig. 7 is a perspective view of the link which connects the switch-lever with the switch-plate through the medium of a bell-crank lever and a second link.

Referring now to the drawings, 5 and 6 represent stationary rails of a main trackway and which trackway also comprises rails 7 and 8 at one end of the fixed rails and additional rails 9 and 10 at the opposite end of the fixed rail. Intermediate the rails 5 and 6 is a cross-over-rail 11, which extends from a point adjacent one end of the rail 6 to a point a similar distance from the end of the rail 5, said rail 11 outlining a compound curve.

On the outer side of the rail 5 is arranged a switch-rail 12, which lies parallel with the

rail 11 throughout the length of the latter and which is continued alongside the rail 9 and divergently therefrom. The rail 12 has a corresponding switch-rail 13 connected with the rail 9 in the rear of its end which lies adjacent the rail 5.

A switch-rail 14 is fixed parallel with the rail 11 and is continued beyond the rail 6 and beside the rail 8 and divergingly of the latter, said diverging portion being parallel with a rail 15, connected with the rail 8 in the rear of its end which lies adjacent the rail 6. The rail 14 lies on the outer side of the rail 6, and the adjacent ends of the rails 5, 6, 11, and 14 lie in a common line transversely of the main trackway, while the adjacent ends of rails 12, 5, 6, and 11 lie also in a common transverse line. Thus if the ends of rails 7 and 8 be brought into alinement with the rails 11 and 12 and if simultaneously the rails 9 and 10, or the rail 9 alone, be moved into alinement with the rails 11 and 14 or rail 11, respectively, then a train approaching upon the rails 7 and 8 will be diverted to the rails 11 and 12 and thence to the rails 12 and 13 and will thus be switched from the main line. If at the same time—that is, while the rails lie with rails 9 and 10 in alinement with rails 11 and 14 and rails 7 and 8 in alinement with rails 11 and 12—a train approaches on rails 9 and 10, it will pass onto the rails 11 and 14 and thence to rails 14 and 15, and thus will be switched from the main line. In order to secure these various alinements of the rails, the ends of rails 7 and 8 and 9 and 10 adjacent the rails 5 and 6 are not fast, but are movable transversely. In order to secure this transverse movement and also to provide an efficient structure, these movable ends of the rails lie upon a plate 16, having a tapered form and provided at their minor extremities with upwardly and inwardly directed flanges 17, which lie upon and engage the opposite faces of their respective rails, it being understood that one of these plates is provided for each of the rails 7, 8, 9, and 10. This connection of each plate with its rail is at a point sufficiently distant from the movable extremity of that rail to prevent interference of the connection with the movement of the rail.

Each plate 16 extends forwardly and beyond the movable extremity of its rail and

beneath the extremities of the fixed rails with which its movable rail is adapted to alternately aline, that portion of the plate last mentioned being provided with upwardly and inwardly directed flanges, as 20 and 21, which lie upon the outer faces of their respective rails and are held in this position through the medium of a bolt 22, passed through alining perforations in said flanges and the webs of the rails. The bolt 22 is provided with a nut 23 for exerting tension thereof, and the flanges of the rails at their ends are in mutual contact, and thus limit the inward movement of the rails. The plates 16 are spiked or otherwise fastened to the ties 24, upon which the rails are laid, and thus are those portions of the rails held by the flanges prevented from accidental movement.

As above intimated, those portions of the rails 7, 8, 9, and 10 lying upon the plates 16 are movable transversely thereof, and in order to secure this movement the plates 16 are provided with depressions 27 and 28, in which are disposed reciprocatory tie-rods 29, the ends of which are held between plates 30 and 31, of which the former passes beneath the movable end of the adjacent rail and up over the flange thereof and into contact with the opposite face of the web of the rail. The plate 31 is in contact with the inner faces of the flange and web of the rail, the inwardly-projecting parallel portions which inclose the rods 29 being fixed to the latter through the medium of pivotal connections in the form of rivets 32, while the plates 30 and 31 are fixed to their respective rails through the medium of clamping-bolts 33, passed through alining perforations in said plates and webs. Each pair of movable rails 7 and 8 and 9 and 10 is provided with two of these connecting-rods, which are in the form of straps, and connected with the rod of each pair is a link 35, the inner end of which is pivoted to the connecting-rod and from which point the link extends inwardly and then downwardly and under the plate 16 at one side and then upwardly and outwardly and has its outer end bifurcated, the resultant ears 36 and 37 lying upon opposite sides of an arm of a bell-crank lever 38, with which they are pivotally connected. The lever 38 is pivotally mounted upon the plate 39, fixed to the projecting ends of tie 24, the opposite ends of said levers having pivoted thereto links 40 and 41, which extend inwardly and are connected with a hand-lever 42 upon opposite sides of its fulcrum, said lever being pivotally mounted in ears upon a tie and being adapted to be locked in either of its operative positions in the usual manner. Thus it will be seen that when the lever 41 is at one limit of its motion, as shown in Fig. 1 of the drawings, the rails 7 and 9 will aline with the rail 5, while the rails 8 and 10 will aline with the rail 6, so that the main trackway will be continuous; also, that when the lever 41 is moved to its opposite position such movement will be contributed to the

movable ends of the rails 7, 8, 9, and 10 and will cause alinement of the rails 9 and 10 with rails 11 and 14, respectively, and the rails 7 and 8 with the rails 11 and 12, respectively, with the results hereinbefore described.

While the drawings show a simple form of lever adapted to operate both pairs of movable rails, it will of course be understood that separate levers may be employed for the purpose and also that the specific construction and arrangement shown may be varied in its various parts without departing from the spirit of the invention; also, that the usual signal-light 45 may be carried by each of the bell-crank levers and will be oscillated thereby to indicate a closed or open switch.

Having described the invention, what is claimed is—

1. In a railway-switch system, the combination with a main trackway including movable rails, of a switch at each side of the main trackway and comprising a single rail common to both switches, and means for moving the movable rails into alinement with the main or switch rails each of said switches comprising also a portion of a main-trackway rail.

2. In a railway-switch system, the combination with a main trackway comprising fixed and movable rails, of a switch at each side of the main trackway and comprising fixed switch-rails, each of said switches including also a portion of a main-track rail, a rail common to the switches and located intermediate the main-track rail and at an angle thereto, and a common means having connections with the movable rails to move them into simultaneous engagement with the switch-rails or the adjacent main-track rails.

3. In a railway-switch system, the combination with main-track rails comprising movable rails, of switch-rails adjacent thereto, a plate including chairs engaging and holding the adjacent ends of corresponding rails, and with which the movable rails are in slidable contact, and means for operating the movable rails to cause them to alternately aline with adjacent fixed rails.

4. In a switch system, the combination with a main trackway comprising fixed rails, and additional rails, portions of which are movable, of switch-rails adapted for alinement with the movable rails alternately with the adjacent fixed rails of the main track, a plate having a single chair connected with the fixed portion of each movable rail, and having a double chair connected with the adjacent ends of the adjacent main and switch rails, connections between corresponding movable rails, bell-crank levers connected with said connections, a lever, and links connecting the bell-crank levers with the last-named lever and adapted to transmit motion from the lever to the movable rails.

5. In a railway-switch system, the combination with main-track rails including rails having fixed portions and movable portions,

of switch-rails, a plate beneath each movable-rail portion and having a chair engaging the corresponding fixed-rail portion, and an additional chair engaging the adjacent ends of
5 the corresponding main and switch rails, transverse depressions in said plates, connections between the elements of each pair of movable-rail portions, lying in said depressions, and a lever connected with said
10 connections and adapted to reciprocate them

in the depressions and align the movable-rail portions with the main and switch rails alternately.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in 15 the presence of two witnesses.

JAMES C. STURM.

Witnesses:

W. D. F. JARVIS,

C. W. WYCKOFF.