

No. 694,563.

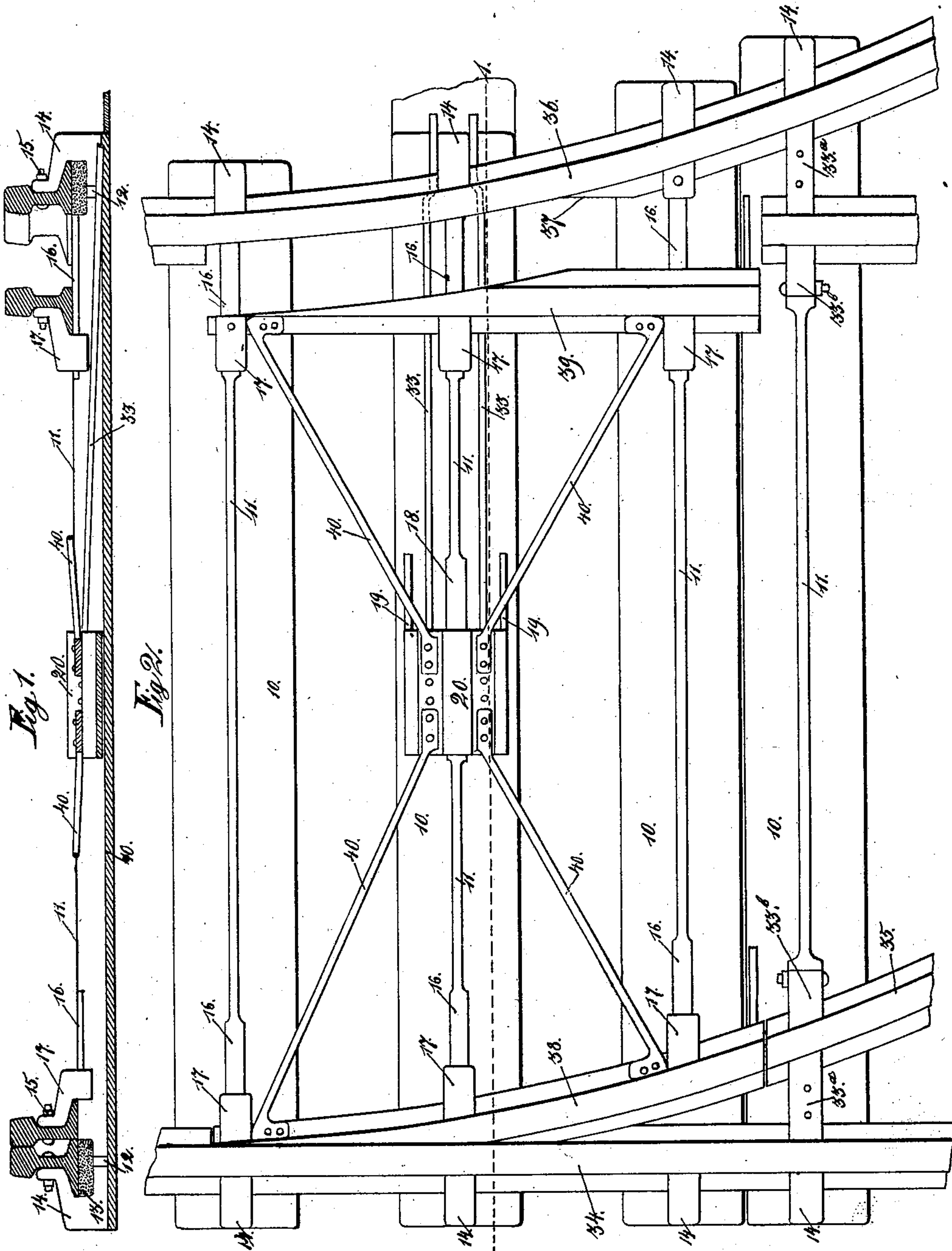
Patented Mar. 4, 1902.

H. K. J. MANGER.
RAILWAY SWITCH.

(Application filed July 24, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
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Inventor: Henry K. J. Manger.
by Orwig & Lane Attys.

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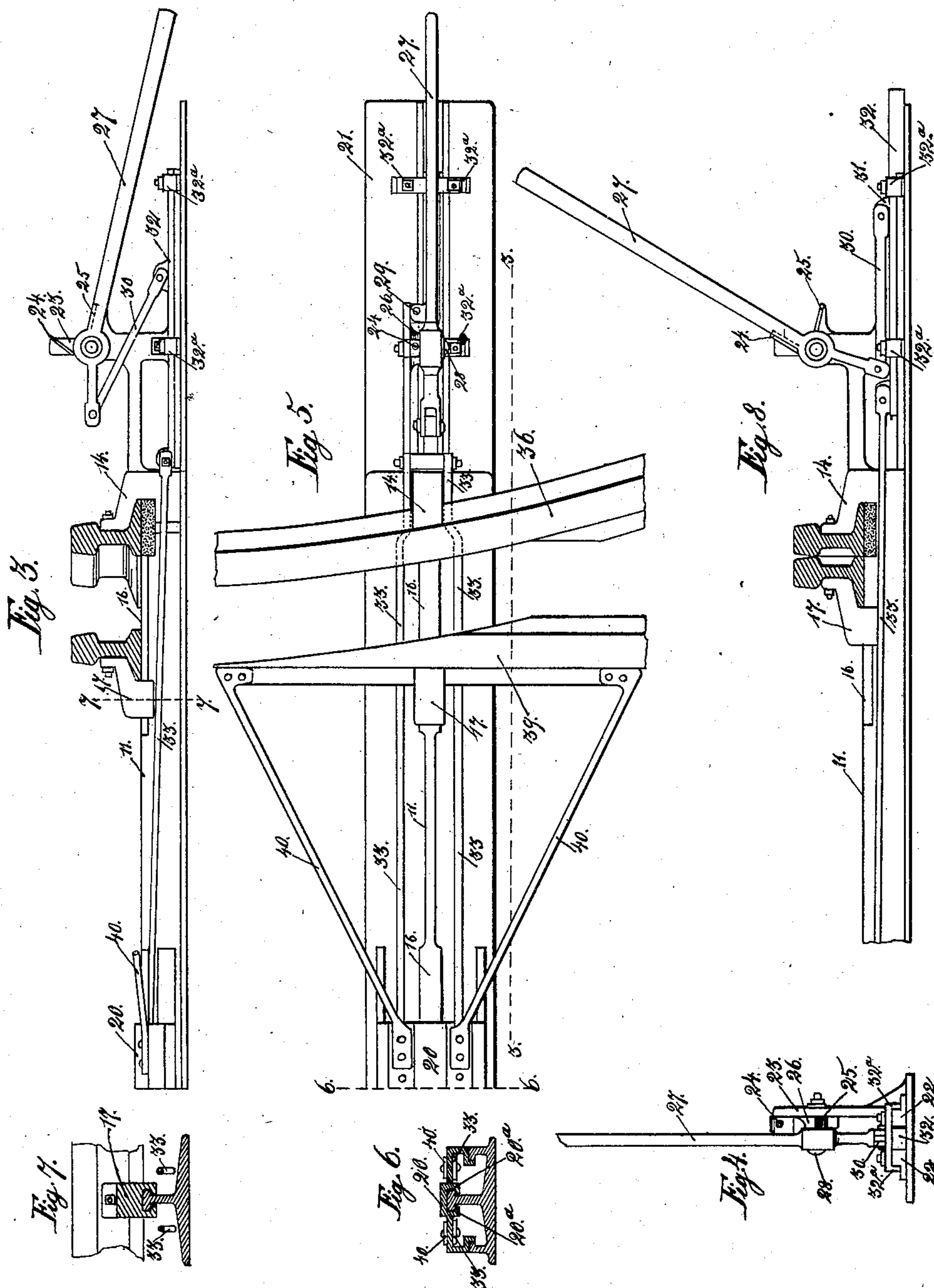
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UNITED STATES PATENT OFFICE.

HENRY K. J. MANGER, OF DES MOINES, IOWA.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 694,563, dated March 4, 1902.

Application filed July 24, 1901. Serial No. 69,601. (No model.)

To all whom it may concern:

Be it known that I, HENRY K. J. MANGER, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented certain new and useful Improvements in Railway-Switches, of which the following is a specification.

The objects of my invention are to provide a railway-switch of simple, durable, and inexpensive construction that may be easily and quickly assembled and easily operated.

The objects of my invention are to provide metallic ties especially adapted for use in connection with my improved switch and shaped and constructed to provide firm supports for the track-rails and sliding supports for the switch-rails and to provide a fulcrum for the switch-lever, and, further, it is my object to provide improved means for connecting the switch-rails with each other and with the metallic ties and the switch-lever so that all the parts of the switch are strong and durable and yet easily operated and firmly held in the various positions.

My invention consists in certain details in the construction, arrangement, and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a vertical transverse sectional view through the indicated line 1 1 of Fig. 2. Fig. 2 shows a plan view of the complete switch with parts of the operating-lever broken away. Fig. 3 shows a detail sectional view on the indicated line 3 3 of Fig. 5. Fig. 4 shows an end elevation of the tie to which the switch-lever is fulcrumed and the parts connected with said tie. Fig. 5 shows top or plan view of one end of the tie to which the switch-lever is fulcrumed and connected parts. Fig. 6 shows transverse sectional view on the indicated line 6 6 of Fig. 5. Fig. 7 shows a transverse sectional view on the indicated line 7 7 of Fig. 3. Fig. 8 shows a side elevation of the end of the tie to which the switch-lever is attached.

As an integral part of each switch I have provided a number of metal ties for supporting the fixed or track rails and for serving as guides upon which the movable switch-rails

operate and for providing a fulcrum for the switch-lever. In the present instance I have shown four ties adapted for this purpose. The first tie, or the tie upon which the pointed ends of the switch-rails rest, comprises a base 10 having a vertical central flange 11, transverse ribs 12 near the end portions of the rail to receive the rail-cushion 13. At each end of the tie beyond the rail-seat is an arm 14, projected inwardly and upwardly and designed to rest against the web of a railway-rail resting upon the cushions 13 and secured to the rail by bolts 15. The top surface of the flange 11 is broadened and flattened near the cushions 13 to form the platform 16, and on these platforms I have mounted a sliding block 17, having its edges projected downwardly and then inwardly around the edges of the platforms 16. These blocks are designed to receive the points of the movable switch-rails and permit them to move only in a direction longitudinally of the ties.

The second tie is like the first, except that upon the central portion of the flange 11 is a platform 18 in the same plane as the platforms 16, and at each side of the platform 18 are the flat guides 19, upon which the sliding plate 20 is mounted for movement longitudinally of the tie. The plate 20 has ribs 20^a on its under surface to engage the edges of the platform 18, as clearly shown in Fig. 6. The function of this plate will be made clear hereinafter. Furthermore, on one side of the tie the base is extended at 21, and on top of the base are two parallel ribs 22, and at one side of the ribs 22 is an upright 23, said upright having a perforated lug 24 formed thereon to project toward the center of the tie and also a perforated lug 25, projected in the same direction. The upright 28 is also provided with a journal-bearing 26, to which the switch-lever is fulcrumed, as hereinafter described.

The numeral 27 indicates a switch-lever fulcrumed to the journal-bearing 26 by means of the bolt 28, and said lever is provided with a perforated projection 29, capable of moving into position adjacent to either one of the perforated lugs 24 and 25, and obviously when the said lever is moved into position adjacent to either of these lugs a lock may be passed through the projections of the le-

ver and upright to firmly secure the lever in the position in which it is set. Pivoted to the lever is a link 30, having its other end pivoted to the ear 31 on the flat bar 32, which bar slides between the ribs 22. Two straps 32^a serve to prevent vertical movement of the bar 32. The said bar 32 is provided with two rods 33, pivotally connected therewith and extending on opposite sides of the vertical flange 11 of the tie to the under surface of the plate 20, to which they are pivoted. By this means it is obvious that a manipulation of the lever 27 will move the plate 20 longitudinally of the tie upon which it is mounted.

The third one of the ties is substantially similar to the first, and the last one is substantially similar to the first except as to its length. However, on said fourth tie I have provided detachable rail-holding blocks 33^a to engage the inner flange of the track-rails and also rail-supports 33^b to engage the ends of the track-rails that are adjacent to the end of the switch-rails.

The numeral 34 indicates a straight track-rail supported upon the ties at one end by means of the bolts 15, passed through the arms 14 of the ties. A portion of the inner flange of this rail is removed to provide room for the curved switch-rail to be placed close to its inner face, and the block 33^a holds the inner flange of this rail on the fourth tie.

The numeral 35 indicates the end of a stationary curved track-rail supported upon the fourth tie by the block 33^b.

36 indicates the stationary curved track-rail and being the mating rail of the rail 35 and permanently supported at the ends of the ties opposite from the ends to which the rail 34 is attached. A portion of the inner flange of this rail is cut away at 37, and the rail is supported upon the ties by means of the bolts 15, passed through the arms 14, and on the fourth tie by the blocks 33^a.

Two movable switch-rails are provided. The first or curved switch-rail is indicated by the reference-numeral 38, and it is tapered to a point at one end and cut off at the other to coincide with the rail 35. This switch-rail is provided with a series of blocks 17 to rest upon the platforms 16 of the ties, so that the said rail 38 may slide freely to a limited extent upon the platforms 16.

The numeral 39 indicates a straight sliding switch-rail tapered to a point at one end to fit closely against the adjacent portion of the track-rail 37, and its other end is cut off to coincide with the rail 36. This sliding rail is mounted upon the platforms 16 and held in position thereon by the blocks 17, as before described in connection with the rail 38. The rails 38 and 39 are connected with each other and with the sliding plate 20 by means of the braces 40, fixed to the inner flanges of the sliding switch-rails and to the plate 20. Obviously when the plate 20 is moved by

manipulation of the switch-lever 27 the track-rails 38 and 39 are moved. When at one limit of their movement, the rail 38 lies close to the rail 34 and the switch is open to the curved track-rails, and when at the other limit of its movement the switch-rail 39 lies close to the track-rail 37 and the switch is set to open the straight track-rail. In practical use it is obvious that the switch-rails are moved jointly upon a manipulation of the switch-lever, and the particular construction of the ties with their platforms to support the movable switch-rails coact with the sliding blocks and plate to firmly support the switch-rails and prevent vertical movement of the switch-rails as well as longitudinal movements. The platforms on which the switch-rails slide being formed of metal cast integral with the ties provide a switch of great durability and strength.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States therefor, is—

1. In an improved railway-switch, comprising in combination a number of metallic ties each having an upright longitudinal rib and flat platforms formed on the ribs, two switch-rails mounted upon the platforms and capable of movement longitudinally of the ties, means for connecting the switch-rails with each other to move in unison, stationary track-rails fixed to the ties.

2. In an improved railway-switch, comprising in combination a number of metallic ties each having vertical longitudinal ribs, portions of the ribs being flattened and provided with outwardly-projecting edges to form platforms, two switch-rails mounted upon the platforms, blocks secured to the switch-rails and passed around and under the outwardly-projecting edges of the platforms to prevent movements of the switch-rails in any direction except longitudinally of the ties, means for connecting the switch-rails with each other to move in unison, and stationary track-rails fixed to the ties.

3. In an improved railway-switch, comprising in combination a number of metallic ties each having vertical longitudinal ribs, portions of the ribs being flattened and provided with outwardly-projecting edges to form platforms, two switch-rails mounted upon the platforms, blocks secured to the switch-rails and passed around and under the outwardly-projecting edges of the platforms to prevent movements of the switch-rails in any direction except longitudinally of the ties, a platform having outwardly-projecting edges formed on the central portion of the vertical rib of one of the ties, two or more ribs formed on said tie adjacent to the said platform and parallel therewith, and blocks mounted upon the said platform and ribs and capable of longitudinal movement only thereon, provided on its under surface with ribs to pass under the overlapping edges of the said platform, rods fixed to

said block and connected with both switch-rails, means for sliding said block, and stationary track-rails fixed to the ties.

4. In an improved railway-switch the combination of a number of metallic ties having formed on, or fixed to a series of flat metal platforms, two switch-rails mounted upon the platforms and capable of movement longitudinally of the ties, one of the ties having integral extension on one end, and an upright on the extension, a switch-lever fulcrumed to the extension, a link pivoted to the switch-lever, means for connecting the switch-rails with each other and means for connecting said link with the switch-rails so that when the lever is operated the switch-rails will be moved longitudinally of the ties, and stationary track-rails fixed to the ties.

5. In an improved railway-switch the combination of a metallic tie having means thereon for supporting the stationary track-rails, and having platforms thereon for supporting the movable switch-rails, and an integral ex-

tension at one end of the tie, an upright on the extension having two laterally-projecting perforated lugs, a lever fulcrumed to the upright and capable of being brought into position adjacent to the said perforated lugs on the upright, a bar slidingly mounted on the extension, and a link connected with the bar and with the switch-lever, substantially as and for the purposes stated.

6. In an improved railway-switch the combination of a series of metallic ties each having a vertical longitudinal rib 11, transverse ribs 12 at the end portions thereof, cushions 13 on the ribs 12, integral extensions 14 at the ends of the tie to engage the webs of the rails on top of the cushions whereby the stationary track-rails may be firmly supported without the use of devices adjacent to the inner surfaces of the rails, for the purposes stated.

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