

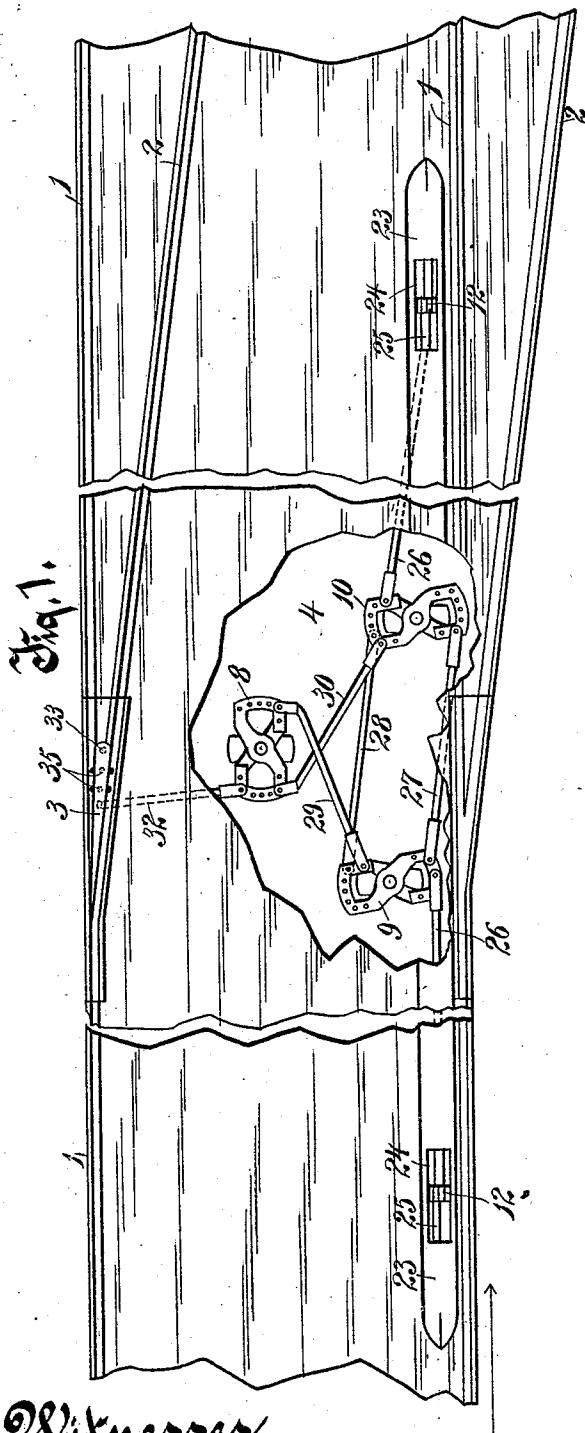
(No Model.)

2 Sheets—Sheet 1.

J. N. MOEHN.
RAILWAY SWITCH.

No. 514,953.

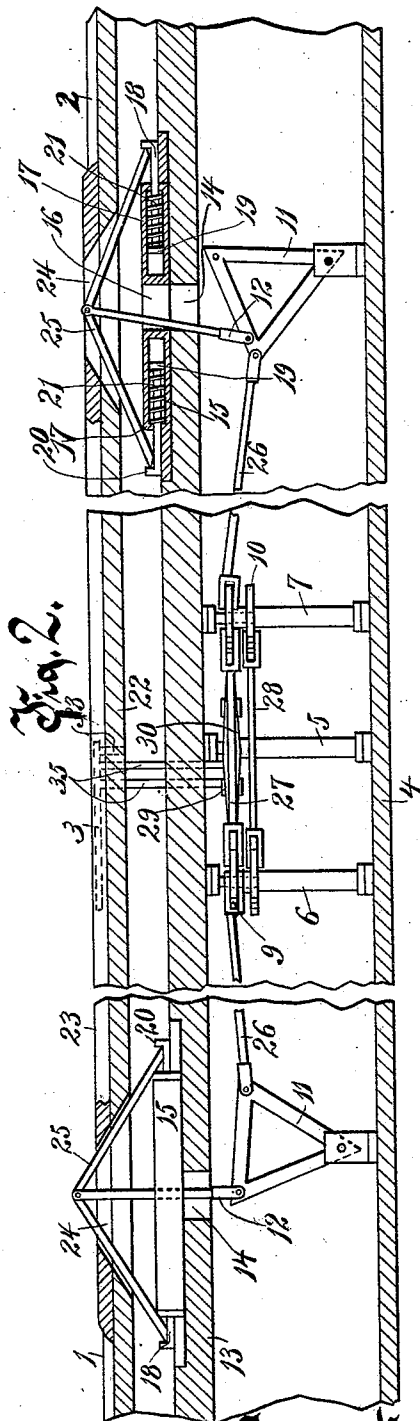
Patented Feb. 20, 1894.



Witnesses.

C. H. Keeney,

Anna V. Faust.



Inventor.

John N. Mochen,
Benedict ¹³⁴ and Moreell,
Attorneys.

(No Model.)

2 Sheets—Sheet 2.

J. N. MOEHN.
RAILWAY SWITCH.

No. 514,953.

Patented Feb. 20, 1894.

Fig. 3.

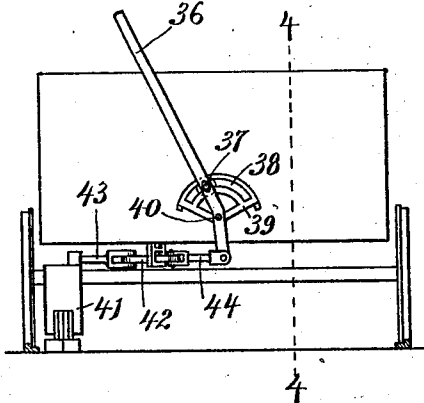


Fig. 4.

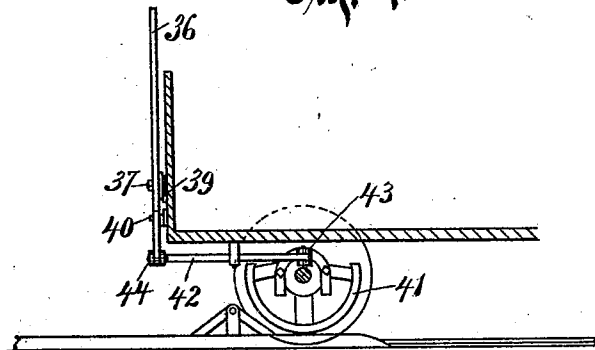


Fig. 5.

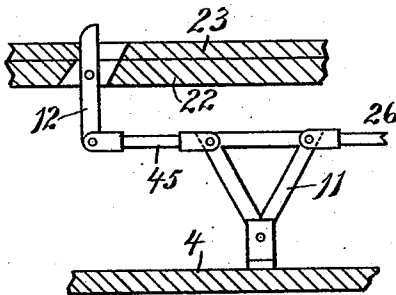


Fig. 6.

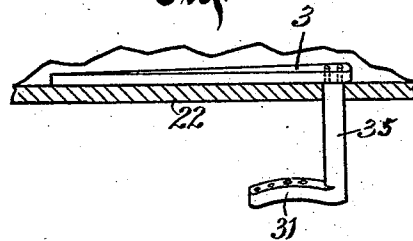
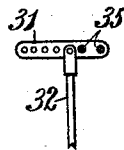


Fig. 7.



Witnesses.

C. H. Kuehn.
Anna C. Faust.

Inventor.

John N. Moehn.
By
Benedict & Mossell.
Attorneys.

UNITED STATES PATENT OFFICE.

JOHN N. MOEHN, OF MILWAUKEE, ASSIGNOR OF ONE-HALF TO MARION FRENCH, OF RACINE, WISCONSIN.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 514,953, dated February 20, 1894.

Application filed March 17, 1893. Serial No. 466,557. (No model.)

To all whom it may concern:

Be it known that I, JOHN N. MOEHN, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Railway-Switches, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention has relation to improvements in automatic railway switches.

The primary object had in view is to provide a railway switch which is automatically operated by the car in its travel over the rail, opening the switch at the point where the car is desired to be switched off, and closing the same as the car leaves the switch rail.

With the above primary object in view, the invention consists in the improved construction and combination of parts hereinafter more fully set forth.

In the accompanying drawings, Figure 1, is a plan view of my invention, parts being broken away for clearer illustration, showing the switch point adjusted to allow the car to pass on to the siding rails. Fig. 2, is a side elevation, and parts being in section, showing the parts 12 and 25 on the left elevated, and the same parts on the right depressed. Fig. 3, is a front view of the car, showing the operative mechanism. Fig. 4, is a longitudinal sectional view on the line 4-4 of Fig. 3. Fig. 5, is a detail view of a modified form. Fig. 6, is a detail of another modification, and Fig. 7, is a detail of the part 31, as ordinarily constructed.

Like numerals of reference denote like parts throughout the several views.

Referring to the drawings, the numerals 1, 1 indicate the main rails, 2, 2, the siding rails, and 3 the movable switch point.

A hollowed out or ditched portion is formed in the road-bed between the tracks at the point of location of the switch, and in the bottom of this is placed a base-plate 4. Projecting up from this base-plate are three standards, designated respectively by the numerals 5, 6 and 7, standards 6 and 7 being slightly out of longitudinal alignment, and standard 5 occupying a medial lateral position with relation to the other standards. Each of these standards is provided with a reduced upper end,

forming shoulders upon which rest, and are free to turn, double levers, preferably of approximate S-shape, forming upper and lower levers to each standard, excepting standard 5, which carries a lever not provided with the lower section, said upper and lower sections being rigidly united by a central, preferably integral collar. These levers are designated, respectively, by the numerals 8, 9 and 10. The several standards just mentioned occupy a medial position with relation to bell-crank levers 11, 11, said bell-crank levers being connected pivotally to upwardly extending levers 12, 12, lever 12 upon the left of Fig. 2 being connected to the outer angle of the bell-crank, and lever 12 on the right to the inner angle of its bell-crank.

A longitudinal piece or beam 13 is arranged above the bed-piece, said beam having slots 14, 14 through which the upwardly extending levers 12 pass. Resting upon this beam are plates 15, 15 provided with central apertures 16, 16, registering with the apertures of a top or cover, hereinafter referred to and providing for the passage of the levers 12, 12. These plates are also provided upon opposite sides of the central aperture, with interior elongated recesses 17, 17. Passing through openings in the opposite ends of the plates and entering the recesses are arms 18, 18 the rear inner ends of said arms terminating in disks or plates 19, 19, and the outer ends upturned, as indicated at 20, 20. Disposed within the recesses and encircling the arms 18 are springs 21, 21, said springs being confined between the disks or plates 19 and the outer ends of the recesses.

Suitably supported above the bottom 13 is a plate or cover 22, which upon one side and adjacent to one of the tracks of the main rail, is provided with a guard 23, said guard provided with elongated openings 24, 24, through which the upwardly extending levers 12 pass. These levers are connected at their upper ends to bars 25, 25, two being provided for each lever, said bars passing through the elongated slots and their lower ends resting loosely in the angles formed by the upturned ends of arms 18, 18.

Links 26, 26 connect the bell-crank levers 11, 11 with the upper portions of the double

S-shaped levers 9 and 10, a series of apertures being provided in all the several levers, whereby the different connections can be made adjustable. The points of connection of the links 26 to the bell-cranks are clearly shown in Fig. 2. The outer and inner ends of each of the levers 9 and 10 respectively are also connected together by links 27 and 28, link 27 connecting the upper sections of said levers and link 28 the lower sections. Connecting the inner ends of the upper sections of levers 9 and 10 respectively, with opposite ends of lever 8 are links 29 and 30 which cross each other so as to bring the latter beneath the former.

The numeral 31 indicates a plate or bar provided in one end with a series of apertures, into any of which the end of a link 32 is inserted, see Fig. 7 the opposite end of said link extending to and connected with one end of lever 8. The top plate 22 has projecting upward therefrom, a pivot pin 33, which connects with one end of the switch bar 3. Plate or bar 31 has extending upward therefrom pins or rods 35, which pass through elongated apertures in the top or cover and connect medially with the switch bar.

It is obvious from the above that when the plate or bar 31 is actuated through the link 32 the switch point is turned upon its pivot through the medial connecting pins or rods 35.

Figs. 3 and 4 of the drawings show the manner of operating my improved switch. I provide a hand lever 36, arranged at a convenient point at the front of the car for manipulation by the driver. This lever is provided with an inwardly extending pin 37, which works in a segmental slot 38 formed in a casting 39. The operating lever is pivoted at the lower end of this casting, as indicated at 40. Loosely upon the fore axle of the car is arranged an operating head 41, said head connected with a lever 42 by a link 43. The forward end of this lever 42 extends beyond the front of the car and connects with the lower end of the operating lever 36 by means of a connecting link 44. In the position shown in Figs. 3 and 4 the operating lever is so adjusted as to bring the operating head in alignment with the upper ends of the bars 25 and levers 12, which together, in connection with the links and levers before described, constitute the means for operating the switch. If the operating lever 36 is thrown toward the opposite end of the segmental slot, the operating head is slid inward upon the fore axle of the car out of alignment with the bars 25 and links 26 so as not to contact with the same and consequently not operate the switch.

Fig. 5 illustrates a modification in the mechanism with which the operating head contacts. In Figs. 1 and 2 this mechanism consists of the bars 25, links 26 and levers 12, the latter being connected to the angles of the bell-crank, the lever on the left of Fig. 2 being connected to the outer angle of the bell

crank and the lever on the right of said figure to the inner angle. As the arms 18, 18 in said construction enter recesses in plates 15, 15, a longitudinal beam 13 or other means of support is necessarily provided for the support of said plates. In the modified form, however, as illustrated in Fig. 5, I propose to use merely a single bar or lever at each end corresponding to the levers 12, and designated by the same reference numeral. Instead of connecting these levers, however, directly with the bell cranks, intermediate connecting links 45 are employed. These links connect respectively with the outer angles of the bell cranks, and not one to the outer angle and one to the inner angle as in the principal form. Fig. 6, also illustrates another modification in my invention, which consists in making the plate or bar 31 and its pin 35 in one piece.

It will be observed from the drawings that levers 9 and 10 normally set at approximately right angles to lever 8.

In the operation of the device, a car travels along the main track in the direction indicated by the arrow, Fig. 1. It will also be understood that when the parts 12 and 25 on the left of Figs. 1 and 2 are elevated, the corresponding parts on the right are depressed, and vice versa. If the driver desires to continue along the main rails 1, the lever is manipulated properly to bring the operating head into alignment with the lever 12 and the bars 25, 25. The moment the operating head strikes the upper ends of these parts, the latter will be depressed, bars 25, 25 acting upon arms 18, 18, so as to throw them outwardly to compress the springs 21, 21 and the lever 12 acting upon the bell-crank so as to turn the same on its pivot and exert a pull upon the link 26. This link turns lever 9 upon its pivot so that its inner end will be thrown in the direction of the line of movement of the car. This will cause a push against one end of lever 8, through the link 29, thus turning said lever on its pivot, and throwing its opposite end toward levers 9 and 10 whereby link 32 is operated to effect the opening of the switch point through the plate or bar 31, and through the pins 35, or, in other words, the turning of said switch point from the position shown in Fig. 1, so that the car will travel straight ahead. The turning of lever 9 upon its pivot, through the action of link 26, also exerts a pull upon link 27, turning lever 10 upon its pivot, the outer end toward the left and the inner end toward the right. The latter end exerts a pull upon under link 30, which assists link 29 in turning lever 8. Link 28 which connects the inner ends of the under sections of levers 9 and 10 merely assists link 27 in turning said levers 9 and 10, and also materially strengthens the structure. It is obvious that the device would operate effectually without this link, but I prefer to use the same, inasmuch as better results are thereby produced. The parts 12

and 25, on the right of Fig. 2, as before explained, being depressed, the turning of lever 10 in the direction just described, will push on the bell-crank on the right, through the link 26, and serve to elevate these parts. The car is now on the tracks between the sets of operating parts 12 and 25. When the car reaches the depressible levers on the right, these are next depressed, whereby the bell-crank lever 11 on the right is turned inwardly upon its pivot, which has the effect of pushing link 26 on the right inwardly so as to turn lever 10 upon its pivot and return it to a normal position, illustrated in Fig. 1. This has the effect of turning both levers 9 and 10 so as to slant toward the left, or to return them to the position shown in Fig. 1, and to turn lever 8 in such manner as to throw one end toward said lever 10, or to return it to the position shown in Fig. 1. This will cause the opposite end of said lever 8 to act upon the switch point, through the connections, and return said switch point to its normal position shown in Fig. 1. At the same time, by the movements last described, the lever 9 in being turned back to its normal position exerts a pull on link 26, on the left, and turns bell-crank lever 11 on its pivot so as to again elevate the parts 12 and 25 on the left.

In the modified form shown in Fig. 5 the operation is exactly duplicated, excepting that the bell-crank lever on the left is rocked outwardly on its pivot, and the bell-crank on the right rocked inwardly on its pivot.

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

1. In a railway switch, the combination of main rails, siding rails and a switch point, horizontally pivoted levers of substantial S-form, one of said levers occupying a medial position between the rails and two of the levers arranged laterally of the first named lever, a link connecting the outer ends of the upper sections of the side levers, links connecting the inner ends of the upper sections of the side levers with opposite ends, respectively, of the medial lever, connections between one end of said medial lever and the switch point, links extending longitudinally from the outer ends of the side levers, and means for operating said last named links, substantially as set forth.

2. In a railway switch, the combination, of main rails, siding rails, and a switch point, horizontally pivoted levers of substantial S-form, one of said levers occupying a medial position between the rails and two of said levers arranged laterally of the first named lever, the latter composed of upper and lower sections rigidly joined by a central connecting collar, a link connecting outer ends of the upper sections of the side levers, a link connecting the inner ends of the under sections of said levers, links connecting the inner ends of the upper sections of the side levers with opposite ends, respectively, of the medial lever, connections between one end

of said medial lever and the switch point, links extending longitudinally from the outer ends of the side levers, and means for operating said last named links, substantially as set forth.

3. In a railway switch, the combination, of main rails, siding rails, a pivoted lever provided with a series of apertures, means for turning said lever upon its pivot, a plate or bar having a series of apertures in one end and also provided with an upwardly extending pin or bolt, a link adapted to connect the lever and plate by insertion in any of the series of apertures, and a pivoted switch point connected with the pin or bolt, of the plate substantially as set forth.

4. In a railway switch, the combination of main rails, siding rails and a switch point, horizontally pivoted levers of substantial S-form, one of said levers occupying a medial position between the rail and two of said levers arranged laterally of the first named lever, a link connecting the outer ends of the upper sections of the side levers, links connecting the inner ends of the upper sections of the side levers with opposite ends, respectively, of the medial lever, connections between one end of said medial lever and the switch point, vertically pivoted levers, links connecting the same with the respective side horizontally pivoted levers, and means for operating the vertical pivoted levers, substantially as set forth.

5. In a railway switch, the combination of main rails, siding rails and a switch point, horizontally pivoted levers of substantial S-form one of said levers occupying a medial position between the rails, and two of said levers arranged laterally of the first named lever, a link connecting the outer ends of the upper sections of the side levers, links connecting the inner ends of the upper sections of the side levers with opposite ends, respectively, of the medial lever, connections between one end of said medial lever and the switch bar, vertically pivoted levers, links connecting the same with the respective side horizontally pivoted levers, vertical levers connected to the upper ends of the vertically pivoted levers, and means carried by the car for engaging said vertical levers for actuating the switch point, substantially as set forth.

6. In a railway switch, the combination of main rails, siding rails and a switch point, horizontally pivoted levers of substantial S-form, one of said levers occupying a medial position between the rails, and two of said levers arranged laterally of the first named lever, a link connecting the outer ends of the upper sections of the side levers, links connecting the inner ends of the upper sections of the side levers with the opposite ends, respectively, of the medial lever, connections between one end of said medial lever and the switch bar, mechanism at one end connected with the side levers and adapted to be actuated by the moving car to cause the side le-

vers to be turned upon their pivots so as to be inclined toward the left, and through the connecting links to turn the medial lever in a direction to close the switch point, and
5 mechanism at the opposite end connected with the side levers adapted to be actuated by the moving car to cause the opposite movement of the levers so as to close the switch point, substantially as set forth.
10 7. In a railway switch, the combination, of main rails, siding rails, a switch point, pivoted levers, connections between said pivoted levers and the switch point to cause the opening and closing of said bar, operating levers
15 pivotally connected to the first named levers, plates through which the operating levers

pass, said plates provided with opposite interior recesses, arms extending into said recesses and provided with upturned outer ends, compressible springs encircling said arms 20 within the recesses, and bars secured to the upper ends of the operating levers and having their lower ends resting loosely in the angles formed by the upturned ends of the spring encircled arms, substantially as set 25 forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN N. MOEHN.

Witnesses:

ARTHUR L. MORSELL,
C. T. BENEDICT.