

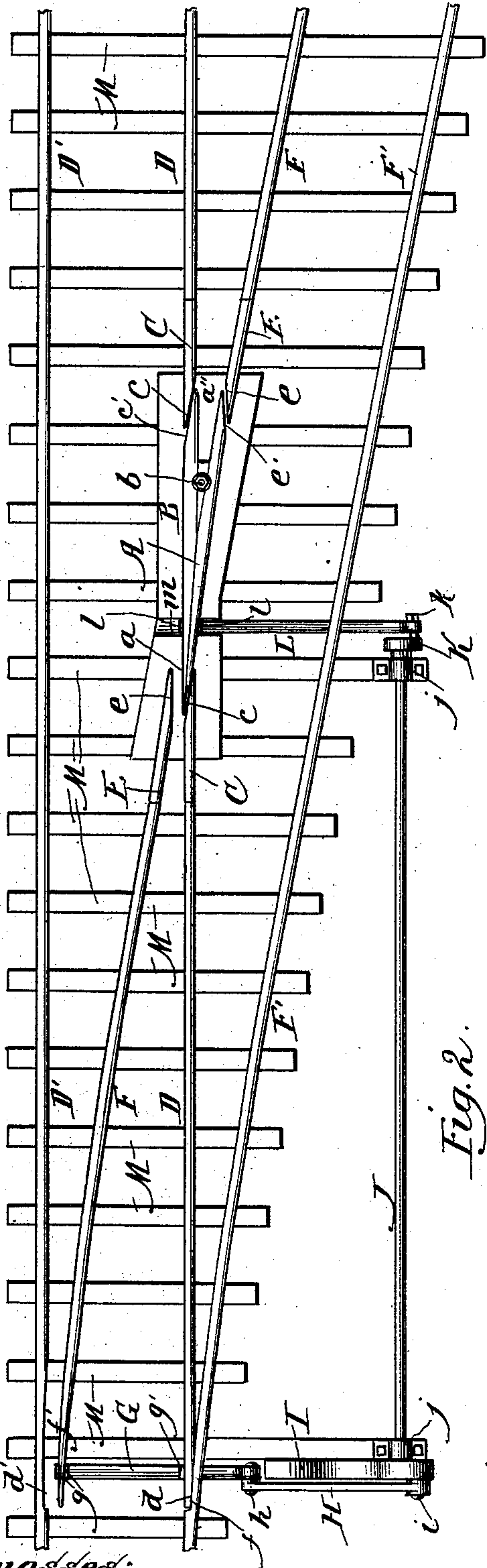
(No Model.)

J. A. KIRBY.
RAILROAD SWITCH.

No. 393,765.

Patented Dec. 4, 1888.

Fig. 1.



Witnesses:
Geo. Bond.
M. S. Price

Fig. 3.

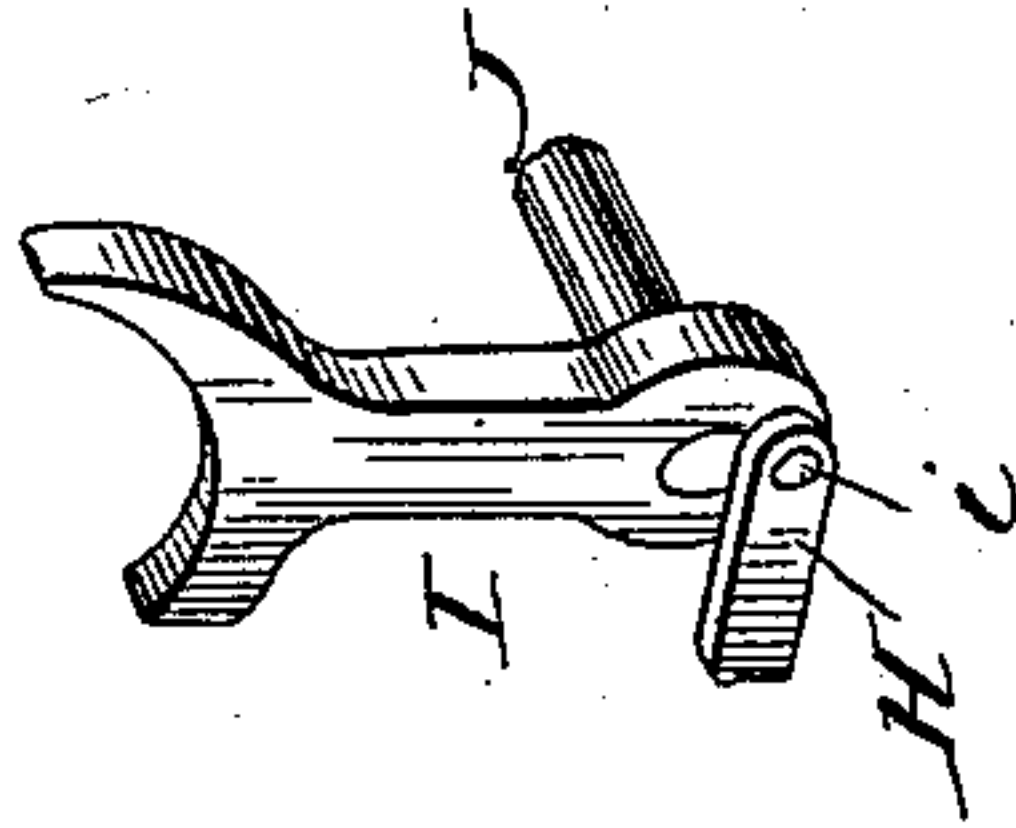
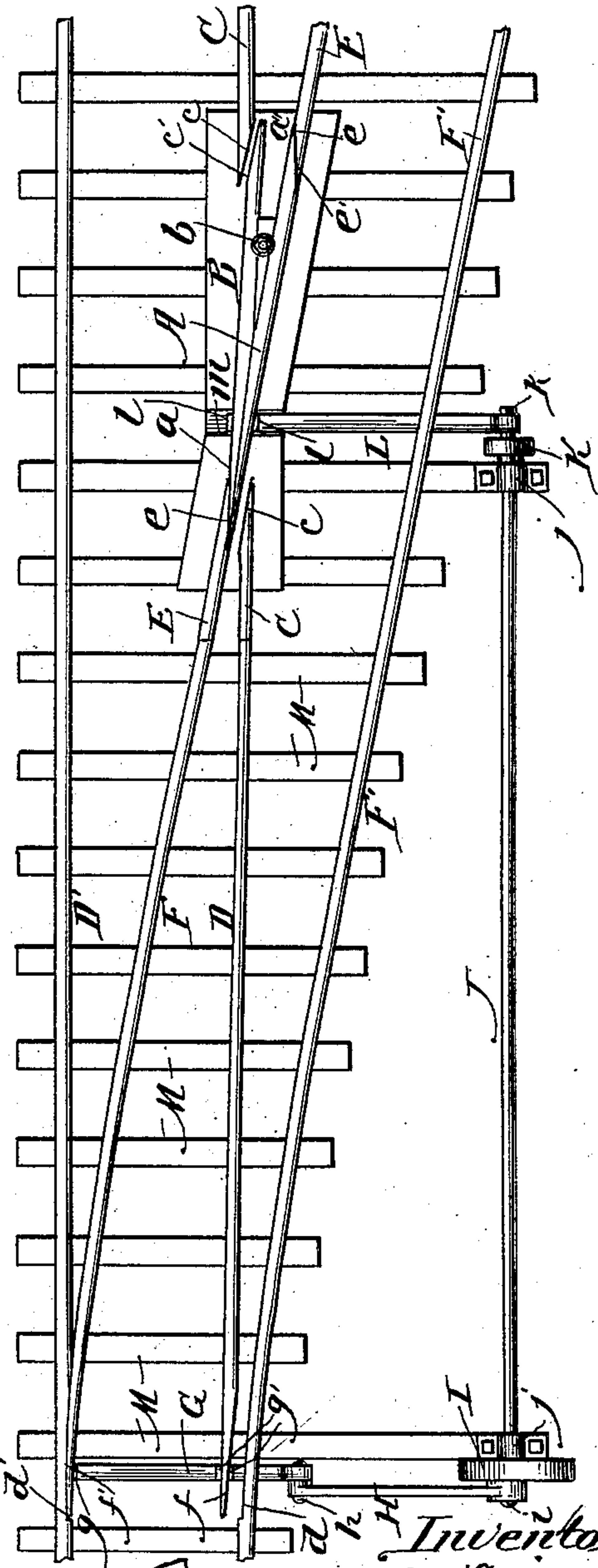


Fig. 2.



Inventor:
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UNITED STATES PATENT OFFICE.

JAMES A. KIRBY, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF, FRANKLIN O. WYATT, AND MORRIS SELLERS, ALL OF SAME PLACE.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 393,765, dated December 4, 1888.

Application filed May 10, 1888. Serial No. 273,627. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. KIRBY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railroad-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 pertains to make and use the same, reference being had to the accompanying drawings, forming a part hereof, in which—

Figure 1 is a plan view showing the switch set for the main track. Fig. 2 is a plan view showing the switch set for the side track; Fig. 3, a perspective view of the switch-lever and connections.

The style of railroad-switches in use requires the employment of a stationary frog at the crossing-point of the rails for the main track and the side track, and such frog necessitates the use of a guard-rail in conjunction therewith, to insure safety and certainty in the running of the wheels from one track to the other, which guard-rail is objectionable on many accounts, and, again, the ordinary frog is objectionable by reason of its being dangerous in use, and because it soon wears out and no provision can be made to break joints, subjecting the rails and frogs at the crossing-point to the constant striking of the wheels, which soon breaks down the rail ends and the frog.

The objects of this invention are to dispense with the ordinary frog and overcome all the objections pertaining thereto, and at the same time insure a certain and reliable crossing from the main-track rails to the side-track rails without any jarring that will produce wear to any great extent; and its nature consists in the several parts and combination of parts hereinafter described, and pointed out in the claims as new.

In the drawings, A represents the shifting crossing, which can be formed of two pieces of ordinary rail cut inclined on the adjoining faces, and firmly secured together by welding, riveting, bolting, or otherwise to form a toe end, *a*, and a heel end, *a''*, which heel end can be cut out at the center, as shown, or be filled in solid, as may be desired, and this shifting

crossing A can be made of a single piece of steel or other suitable material formed to have a toe end, *a*, and a heel end, *a''*.

B is the base or plate, made of boiler-iron, steel, or other suitable material, and on which is mounted the shifting crossing A, secured in place by a pivot pin or bolt, *b*, located at the heel end of the crossing A in the construction shown, which pivot permits the shifting crossing to be moved at its toe and heel to the extent required to make a main-track or a side-track connection.

C are the connecting ends for the main-track rails, of a form corresponding to the rails and firmly secured to the bed or plate B at each end to coact with the shifting crossing A. Each connecting end C is cut away on the inside, adjacent to the shifting crossing, to form an incline, *c*, the incline *c* of one end connection C coacting with the toe *a* of the shifting crossing, and the incline *c* of the other end connection C coacting with an incline, *c'*, of the heel *a''* of the shifting crossing A, which inclines *c* and *c'* allow the crossing A to be brought in line with the connecting ends C on the inside and present a practically unbroken surface for the shifting crossing and connecting ends C with overlapping joints.

D represents the inside rails of the main track, and D' the outside rails of such track. The inside rails connect directly with the respective connecting ends C, and the rail D on the end adjacent to the toe of the shifting crossing is movable at its outer end, so as to be moved in and out, and its outer face, at the extreme end, is cut away to form an incline, *d*, and its companion outer rail is cut away on the inside to leave an incline, *d'*.

E are the connecting ends for the side-track rails, of a form corresponding to the rails, and firmly secured to the bed or plate B at each end and opposite to the connecting ends C, to coact with the shifting crossing A. Each connecting end E is cut away on the inside, adjacent to the shifting crossing, to form an incline, *e*, to coact with the toe *a* and the heel *a''*, the heel having an incline, *e'*, and these inclines *e* and *e'* correspond with the inclines *c* and *c'*, and are for the same purpose of allowing the shifting crossing to be brought in line with the connecting ends E and present an unbroken

surface on the inside, with an overlapping joint at each end.

F represents the inside rails of the side track, and F' the outside rail of such track.

5 The inside rail, F, adjacent to the main-track rail D', having the incline d' , is cut away on its outside at the end to form an incline, f' , fitting the incline d' , and this end of the rail F is movable, so as to be moved in or out, and, 10 as shown, the rail has a slight curve. The outside rail, F', at a point adjacent to the end of the rail D having the incline d , is cut away on the inside to form an incline, f , fitting the incline d , and, as shown, this rail F' is slightly 15 curved. The inclines d , d' , f , and f' allow a sufficient play of the free ends of the rails D and F to shift such rails to make the connection with the main track or the side track, as required.

20 G is a bar connecting the free ends of the rails D and F, and, as shown, the bar G is connected to the rail F by lugs or projections g on the bar, between which the end of the rail F enters, and is connected with the rail D by 25 a lug, g' , bearing against the inside of the rail, so that by moving the bar G both rails D and F will be moved together at their free ends.

30 H is a link or bar connected at one end with the bar G by a pin or bolt, h , which forms a pivotal connection.

I is a switch-lever, to which the outer end of the link II is attached by a pin, i , located outside of the center of motion of the lever.

35 J is a rock-shaft mounted in suitable boxes, j , on the ties or other support, and to one end of which is firmly secured the switch-lever I.

K is a disk or head secured firmly to the outer end of the rock-shaft J, and having a pin, k , at one side of the center of motion.

40 L is a bar attached at its outer end to the pin k , and having at its inner end lugs or projections l , between which the shifting crossing lies and is held, and, as shown, the plate or bed B is provided with a recess, m , 45 for the passage of the bar L. The connection of the bar L to the shifting crossing is back of the extreme point of the toe a .

50 M are the ties, to which the track-rails are secured in the usual manner, and on which the bed or plate B is secured, and, as shown, two of the ties are extended to furnish the support for the rock-shaft J.

55 The base or plate B, with the shifting crossing A pivoted thereto, and the connecting ends C and E secured thereto for the shifting crossing A to coact with the connecting ends C and E, is located in position at the crossing-point of the inner rails of a main and side track for the connecting end C to line 60 with the rails of the main track and the connecting ends E to line with the rails of the side track, and when in position the shifting crossing is in such relation with the connecting ends and track-rails that it can be brought 65 into position to form a part of the main track or a part of the side track, as required, pre-

70 senting an unbroken surface to travel over on the inside of the inner rails of either track. The moving rails of the main track and the side track throw in unison with the change in 75 position of the shifting crossing to present an uninterrupted track in connection with the shifting crossing for either track, and as the movable track-rails operate in unison it follows that if one is changed the other must be 80 changed correspondingly, making or breaking the connection with either track, as required, through the movement of the switch-lever I, rock-shaft J, head K, and connecting-bars G, 85 H, and L, by which the movable rails and the shifting crossing are thrown for connection with the track desired.

In use the operator, by moving the switch-lever I in the proper direction, carries the movable ends of the rails D and F over for 85 the rail D to coincide with the main track and the rail F to be away from the main-track rail, as shown in Fig. 1, or vice versa, as shown in Fig. 2, and with each change of position of 90 the movable ends of the main and side track rails a corresponding change is had in the relation of the shifting crossing to the main and side track rails, as shown in Figs. 1 and 2, and this change in position of the shifting crossing is made through the rock-shaft J and 95 its connection to the shifting crossing. The throwing of the lever I down into the position shown in Fig. 1 moves back the link II and connecting-bar G, drawing the end of the rail D against the side of rail F' and drawing the 100 end of the rail F away from the side of the rail D', and this same movement of the lever I turns the rock-shaft J partially, moving the bar L outward and bringing the toe a in line with the connecting end C of the main track 105 and the heel a' in line with the other connecting end C of the main track, presenting an unbroken track-line by the action of the same lever. The movement of the lever from the 110 position shown in Fig. 1 to that shown in Fig. 2 advances the link II and connecting-bar G to force the movable end of the rail D away from the rail F' and bring the movable end of the rail D' in contact with the rail F, and 115 at the same time, by the reverse turning of the rock-shaft J, the bar L is advanced, carrying the toe a of the shifting crossing A away from the connecting end C and in line with the connecting end E, and carrying the heel 120 a' of this crossing A away from the end C and in line with the end E, presenting an unbroken track-line for the side track.

The shifting crossing A, working in connection with the connecting ends C and E, closes 125 the space at the toe and heel of the crossing A at the juncture with the connecting ends in the side for the switch, and by reason of the overlapping joints at the toe and heel a surface for the track of the wheels is provided, which is in effect a continuous one, prevent- 130 ing any wear at these points from the striking of the wheels, and inasmuch as the shift-

ing crossing and the connecting ends present an unbroken inner face for the respective rails when connected no guard-rail is required, and by the use of this shifting crossing A a safe, reliable, and practical means is provided for insuring the transfer or change from a main track to a side track, in connection with the movable ends of the rails, which completes the connection from one track to the other, and as the movement of one part is dependent on the movement of the others safety is assured in making the change.

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

1. A pivoted shifting crossing having a toe and a heel, both of a wedge shape, formed by tapering each side both ways, in combination with the rails of a main and side track, substantially as and for the purposes specified.

2. A pivoted shifting crossing having a toe and a heel, both of a wedge shape, formed by tapering each side both ways, and connecting ends, each having a face adjacent to the toe and heel corresponding in taper to the taper of the toe and heel, in combination with the stationary rails of a main and side track and the movable rails of such track for changing the tracks, substantially as specified.

3. A pivoted shifting crossing, A, having a tapering toe and heel, plate or bed B, and connecting ends C, each having a taper adjacent to the toe and heel, respectively corresponding to the taper of the toe and heel, in combination with the rails of a main track for presenting an unbroken surface for the track, substantially as and for the purposes specified.

4. A pivoted shifting crossing, A, having a tapering toe and heel, plate or bed B, and connecting ends E, having a taper adjacent to the toe and heel corresponding to the taper of the toe and heel, in combination with the rails of a side track for presenting an unbroken surface for the track, substantially as and for the purposes specified.

5. A pivoted shifting crossing, A, having a tapering toe and heel, plate or bed B, and connecting ends C and E, having tapering faces

to coact with the taper of the toe and heel, respectively, for making a continuous connection between a main and side track with an unbroken traveling surface, substantially as specified.

6. A pivoted shifting crossing, A, having a tapering toe and heel, plate or bed B, and connecting ends C and E, having tapering faces to coact with the taper of the toe and heel, in combination with a movable track-rail, D, of the main track and a movable track-rail, F, of the side track for changing the tracks, substantially as specified.

7. A shifting crossing, A, having a toe, *a*, and heel *a''*, with inclines *c'* and *e'*, in combination with a plate or bed, B, connecting ends C, having each an incline, *c*, on its inner face, and connecting ends E, having each an incline, *e*, on its inner face, substantially as and for the purposes specified.

8. A shifting crossing, A, having a toe, *a*, and a heel, *a''*, with inclines *c'* and *e'*, bed or plate B, connecting ends C, each with an incline, *c*, on its inner face, and connecting ends E, each with an incline, *e*, on its inner face, in combination with a track-rail, D, having an incline, *d*, a track-rail, D', having an incline, *d'*, a track-rail, F, having an incline, *f*, and a track-rail, F', having an incline, *f'*, for making an unbroken connection between a main track and a side track at the crossing of the two, substantially as specified.

9. A shifting crossing, A, having a toe, *a*, and a heel, *a''*, with inclines *c'* and *e'*, bed or plate B, connecting ends C and E, each with an incline on its inner face, main-track rail D, with incline *d*, main-track rail D', with incline *d'*, side-track rail F, with incline *f*, and side-track rail F', with incline *f'*, in combination with the connecting-bar G, link H, lever I, rock-shaft J, head K, and connecting-bar L, for changing the rails of the main and side tracks, substantially as specified.

JAMES A. KIRBY.

Witnesses:

O. W. BOND,
M. L. PRICE.