

(No Model.)

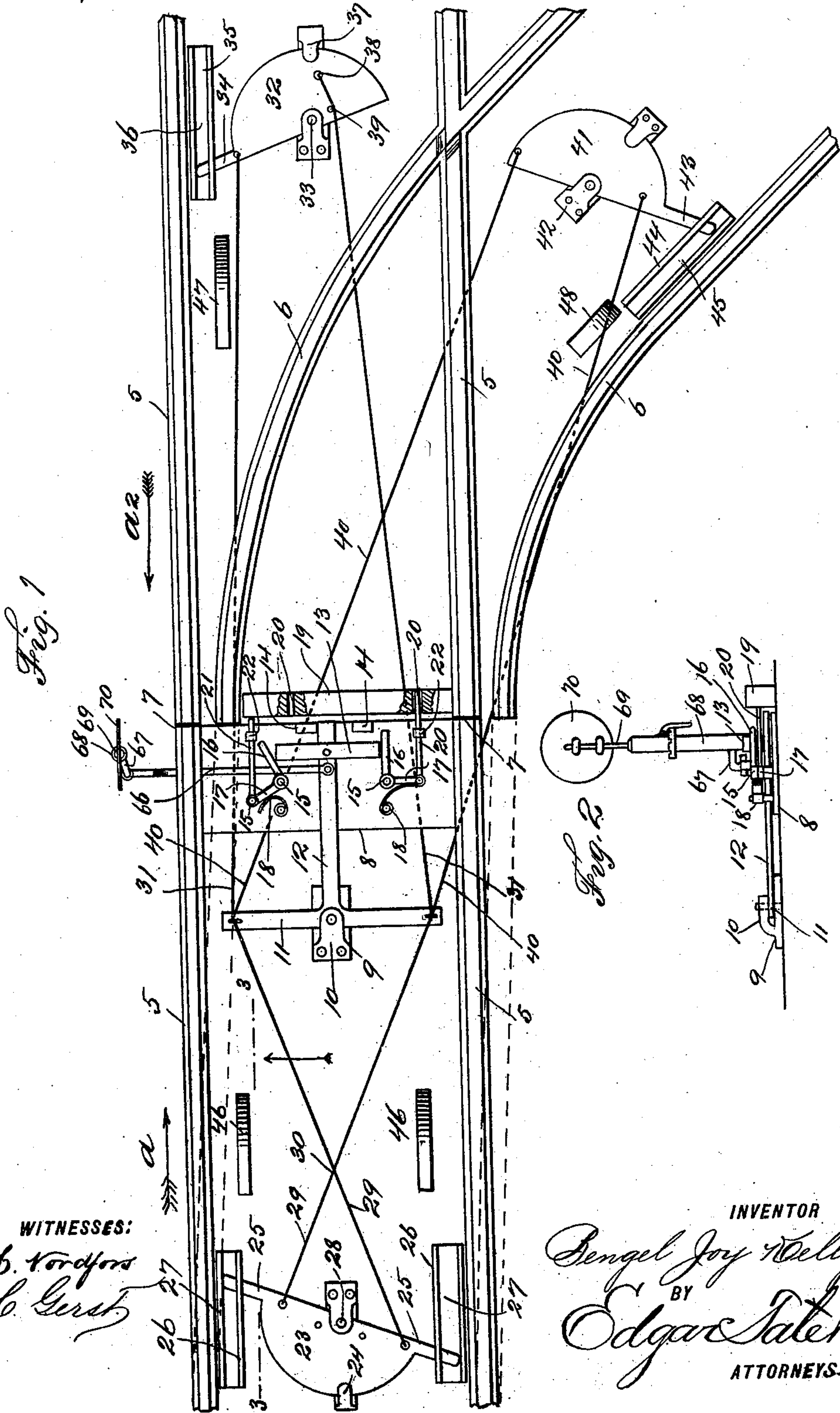
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B. J. KELLY.

RAILWAY SWITCH AND MEANS FOR OPERATING SAME.

No. 599,847.

Patented Mar. 1, 1898.



WITNESSES:

B. Nordfors
C. Gersh

INVENTOR

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BY
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ATTORNEYS.

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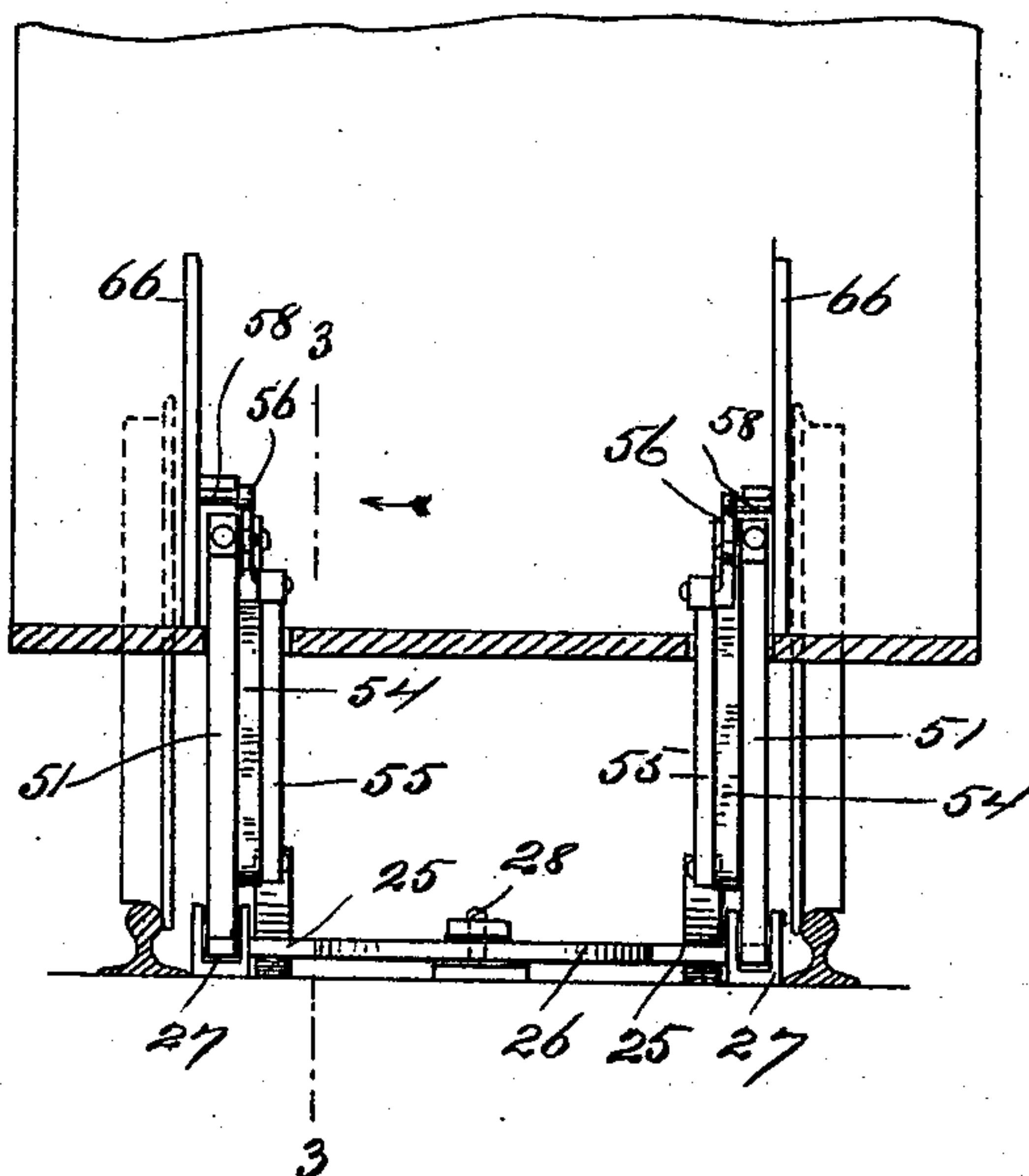
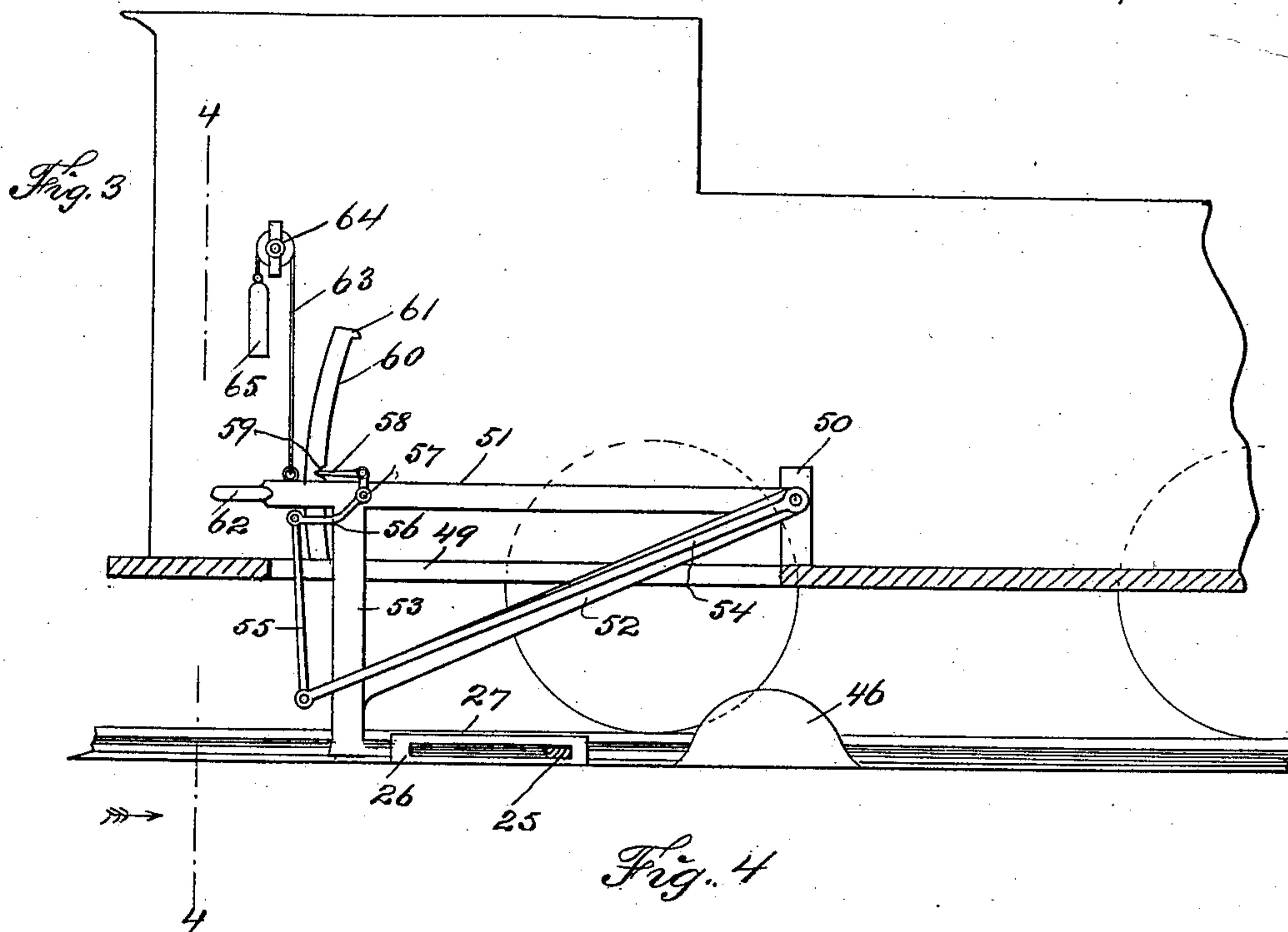
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UNITED STATES PATENT OFFICE.

BENGEL JOY KELLY, OF CORVALLIS, OREGON.

RAILWAY-SWITCH AND MEANS FOR OPERATING SAME.

SPECIFICATION forming part of Letters Patent No. 599,847, dated March 1, 1898.

Application filed August 4, 1897. Serial No. 647,056. (No model.)

To all whom it may concern:

Be it known that I, BENGEL JOY KELLY, a citizen of the United States, residing at Corvallis, in the county of Benton and State of Oregon, have invented certain new and useful Improvements in Railway-Switches and Means for Operating the Same, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to railway-switches and to means for operating the same; and the object thereof is to provide a railway-switch with improved operative mechanism which is adapted to be operated by devices connected with a car or engine.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which—

Figure 1 is a plan view of the main track of a railway and of a side track or switch and showing the operative mechanism which I employ connected therewith; Fig. 2, a side view of a supplemental device which I employ whereby the switch may be operated by hand; Fig. 3, a sectional view of a car mounted on the main track and showing the operative devices connected therewith, the line of the section through the car being indicated by the line 3 3 of Fig. 1 and 3 3 of Fig. 4; and Fig. 4, a section on the line 4 4 of Fig. 3.

In the drawings forming part of this specification the separate parts of my improvement are designated by the same numerals of reference in each of the views, and in said drawings I have shown at 5 the rails of a main railway-track and at 6 the rails of a side track, and the rails of the main track are divided at 7 and the rails of the side track terminate on the line of said division, and in the practice of my invention I mount transversely of the main track, adjacent to the ends of the rails 6, opposite the rails of the side track, a movable plate or bar 8, with which the ends of the rails 5 opposite the ends of the rails of the side track are connected.

Adjacent to the plate 8 and on the side thereof opposite the rails of the side track is secured a plate 9, which is provided with an upwardly and forwardly directed arm 10, to which is pivoted a cross-bar 11, which is

provided with a forwardly-directed central arm 12, and the forwardly-directed arm 12 extends over the cross-plate 8, and connected therewith is a transverse bar 13.

The free end of the arm 12 of the cross-bar 11 is adapted to move between upwardly-directed lugs or projections 14, formed on or secured to the plate 8, and pivoted to the cross-plate 8 at 15 between the ends of the cross-bar 13 and the cross-bar 11 are crank-levers, each of which is provided with two arms 16 and 17, and the arms 16 project adjacent to and beyond the end of the cross-bar 13, while the arms 17 project outwardly and longitudinally of the plate 8, and connected with said plate adjacent to each of said crank-levers is a spring 18, and said springs 18 are adapted to operate on the arms 17 of the crank-levers 15.

Mounted transversely of the track on a line with the ends 6 of the side track is a bar 19, which is provided with two transverse holes or openings 20, and pivotally connected with the ends of the arms 17 of the crank-levers 15 are rods 21, which pass loosely through keepers 22, secured to the plate 8, and which are adapted to enter the holes or openings 20 in the bar 19.

At a predetermined distance to the left of the plate 8, as shown in the drawings, is pivoted a semicircular cross-head 23, the convex side of which is directed backwardly and moves under a keeper 24, and the said cross-head 23 is provided at each end with an arm 25, and the arms 25 pass through the inner walls 26 of guide-boxes 27, secured adjacent to the inner side of each of the rails of the main track opposite the pivotal connection of said cross-head, said guide-boxes being open at the top, and connected with said cross-head at the opposite sides of its pivotal support, which is shown at 28, are rods, chains, cords, or similar devices 29, which are crossed at 30 and connected with the opposite ends of the cross-bar 11.

Connected with the opposite ends of the cross-bar 11 are two supplemental rods, cords, or similar devices 31, which are carried to the right of Fig. 1 and connected with a cross-head 32, which is pivoted at 33, and which is similar to the cross-head 23, and which is pro-

vided at one end with an arm 34, which passes through a slot in the inner wall 35 of a guide-box 36 similar to the guide-box 27.

The cross-head 32, or the curved side thereof, moves in a keeper 37, and one of the rods, cords, or chains 31 is connected therewith at 38 and is passed around a pin 39.

I also connect with the ends of the cross-bar 11 auxiliary cables, cords, or chains 40, which are carried along the side track beneath and between the rails of the main track and connected with a cross-head 41 similar in all respects to the cross-head 23, and which is pivoted at 42 and provided at one end with an arm 43, which passes through the inner wall 44 of a guide-box 45, and secured within the rails of the main track in front of the guide-box 27 adjacent to each side of the track are cam-blocks 46, and a similar cam-block 47 is placed in front of the cross-head 32, on the side thereof with which the arm 34 is connected, and another cam-block 48 is placed in front of the guide-box 27 and slightly inside thereof.

In Fig. 3 I have shown a longitudinal section of a part of the car, in the bottom of which is formed a longitudinal slot 49, at the front of which is a standard 50, to which is pivoted a triangular frame 51, consisting of an upper horizontal bar, a downwardly-inclined bar 52, and a vertical bar 53, the lower end of which projects below the inclined bar 52, and pivotally connected with the standard 50 at the point where the triangular frame 51 is connected therewith is a rod 54, which projects backwardly along the side of said frame and beyond the rear end thereof, and pivotally connected with the rear end of said rod is an upright rod 55, which passes through the slot 49, and with the upper end of which is pivotally connected a crank-lever 56, which is pivoted to the triangular frame 51 at 57, and which is provided with a backwardly-directed prong 58, which is adapted to operate in a notch or recess 59, formed in an upright curved bar 60, secured to the bottom of the car, and the bar 60 is provided at its upper end with a forwardly-directed projection 61.

The triangular frame 51 is provided with backwardly-directed handle 62, and secured thereto is a rope, cord, or chain 63, which passes over a pulley 64, and to which is secured a weight 65. This device is connected with the car and intended to operate the switch-operating mechanism, which is connected with the switch, and it will be understood that two sets of these devices are employed, one at each side of the car, as shown in Fig. 4, and this device may be applied to an ordinary car or to a locomotive, and the operation will be readily understood from the foregoing description when taken in connection with the accompany drawings and the following statement thereof.

Suppose a car to be moving in the direction of the arrow α of Fig. 1 and it is desired that said car take the side track. The triangular

frame 51 on the right-hand side of the car is depressed by means of the handle 62, and the lower end of the vertical bar 53 of said triangular frame passes through the corresponding guide-box 27 and strikes the corresponding arm 25 of the cross-head 23 and throws said cross-head into the position shown in Fig. 1 and the rails of the main track into the position shown in dotted lines in Fig. 1, in which position they register with the rails of the side track. In this operation the rod 20, which is connected with the crank-lever 15, is drawn out of the cross-bar 19, and the rod 21, which is connected with the opposite crank-lever 15, is forced into said bar or into the adjacent hole or opening 20 thereof by the corresponding spring 18, and this locks the rails of the main track in the position shown in dotted lines, and the car is free to take the side track.

If a car be approaching the switch on the side track and it is desired that said car take the main track, the cross-head 41 is operated in the same manner, and this operation also operates the cross-bar 11 and the parts in operative connection therewith and throws the parts of the main track into the position shown in dotted lines in Fig. 1. If a car be moving on the main track in the direction of the arrow α^2 and the rails of the main track are in the position shown in dotted lines in Fig. 1, the cross-head 32 is operated and the rails of the main track are thrown backwardly into the position shown in full lines in Fig. 1, it being understood that one of the pins 20 and 21 is always in connection with the bar 19. After the triangular frame 51, which is connected with the car, has been operated, as herein described, it is automatically thrown upwardly or the rear end thereof raised by the lower end of the rod 54 striking the cam-blocks 46, 47, or 48, and in this operation the rod 55 is forced upwardly and the crank-lever is disconnected from the curved bar 60, so as to permit of the operation of the triangular frame 51, and the forwardly-directed hook or projection 61 at the upper end of the bar 60 is intended to limit the upward movement of said triangular frame 51, and said triangular frame 51 is drawn upwardly by the weight 65, as will be readily understood. It will also be understood that the pivoted rod 54, the rod 55, and the crank-lever 56, connected therewith, are intended to lock the frame 51 in its lowest position or in the position shown in Fig. 3; but when the end of the rod 54 strikes one of the cam-blocks 46, 47, or 48 the crank-lever 56 will be released from the upright bar 60 and the triangular frame 51 will be raised by means of the weight 65.

In Figs. 1 and 2 I have shown an ordinary device for operating the switch by hand when desired, and this device consists of a rod 66, which is pivotally connected with the arm 12 of the cross-bar 11, and which passes beneath one of the rails of the main track, and is connected with an arm 67, formed on a sleeve

68, mounted on a vertical rod 69, which carries at its upper end a signal-plate 70, and the sleeve 68 may be turned in any desired manner and locked in any desired position.

5 This device, however, forms no part of my invention and is therefore not shown and described in detail, and any suitable device may be provided for this purpose.

10 It will be understood that the rails 5 of the main track with which the plate 8 is connected are so supported or held in position that they may be swung back and forth, as herein described, the spring action of said rails being sufficient for this purpose; and,

15 Having fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a railway-switch, the combination with a main track and a side track or switch, 20 the ends of which terminate on approximately the same plane respectively, of a cross-plate joining opposite ends of the said rail of the main track, a cross-bar placed between the ends of the rails of said side track, a bar pivoted between the rails of the main track adjacent to said cross-plate, laterally-extending 25 arms secured to said pivoted bar, a cross-arm attached near the free end of said pivoted bar, spring-actuated bell-cranks mounted adjacent to the ends of said cross-arm, rods pivoted thereto whereby in conjunction with sockets in the bar between the rails of said side track, the switch is automatically locked 30 whether open or set, abutments on said cross-plate adapted to contact with the free end of said pivoted bar, whereby a lateral movement is imparted to said cross-plate by said pivoted bar, cross-heads pivoted between the rails of the main and the side track and connections 35 between said cross-heads and said pivoted bar respectively, said cross-heads being adapted to be operated by devices supported by the car, substantially as described.

2. The combination with a railway-switch 45 and operative mechanism connected therewith and constructed as herein described, of devices connected with a car for operating said mechanism, said devices consisting of a pivoted frame which passes through a slot 50 formed in the bottom of the car, and which is provided with a downwardly-directed bar, said frame being provided with a handle by which it may be depressed and with a weight which is connected therewith by a 55 cord, which passes over a pulley, substantially as shown and described.

3. The combination with a railway-switch and means for operating the same, said means being adapted to be actuated from the car, of 60 a pivoted frame passing downwardly through a slot formed in the car-bottom, a downwardly-directed bar supported by said frame, a handle attached to said frame whereby it may be depressed, a weight for normally holding said 65 frame and the bar supported thereby out of operating contact with the means for operating the switch, means for locking said frame in

its lowest position; cam-blocks mounted between the rails of the tracks, and a depending bar connected with said means and adapted by 70 contact with said cam-blocks, to release said locking mechanism and permit said weight to restore said frame to its normal position, substantially as described.

4. The combination with a railway-switch 75 and means for operating the same, said means being adapted to be actuated from the car, of standards on the interior of the car, a frame fulcrumed on said standards and passing 80 downwardly through a slot formed in the car-bottom, a downwardly-directed bar supported by said frame, handles attached to said frame whereby it may be depressed, a weight for normally holding said frame and the bar 85 supported thereby out of operative contact with the means for operating the switch, a vertically-extending guide having a notch or recess therein, a bell-crank pivoted on said frame adjacent to said guide, a bar supported 90 by said crank and adapted to engage in said notch or recess whereby said frame is locked at its lowest position, a bar depending from the opposite end of said bell-crank, and cam-blocks mounted between the rails of the track 95 whereby said bar is elevated to release said locking mechanism and permit said weight to restore said frame to its normal position, substantially as described.

5. The combination with a railway-switch and means for operating the same, said means 100 being adapted to be actuated from the car, of standards on the interior of the car, a frame fulcrumed on said standards and passing downwardly through a slot formed in the car-bottom, a downwardly-directed bar supported 105 by said frame, handles attached to said frame whereby it may be depressed, a weight for normally holding said frame and the bar supported thereby out of operating contact with the means for operating the switch, a verti- 110 cally-extending guide having a notch or recess therein, a bell-crank pivoted on said frame adjacent to said guide, a bar supported by said crank and adapted to engage in said notch or recess whereby said frame is locked 115 at its lowest position, a bar depending from the opposite end of said bell-crank, a bar pivotally connected therewith and with said standards and cam-blocks mounted between the rails of the track whereby said bar is 120 elevated to release said locking mechanism and permit said weight to restore said frame to its normal position, substantially as described.

6. In a railway-switch the combination with 125 a main track and a side track or switch, the ends of which terminate approximately on the same plane respectively, of a cross-plate joining the opposite ends of the said rails of the main track, a cross-bar located between 130 the ends of the rails of said side track and so disposed as to be parallel with said plate, a bar pivoted between the rails of the main track adjacent to said cross-plate, laterally-

extending arms secured to said pivoted bar,
a cross-arm attached near the free end of
said pivoted bar, spring-actuated bell-cranks
5 mounted adjacent to the ends of said cross-
arm, rods pivoted thereto whereby, in con-
junction with sockets in the bar between the
rails of said side track, the switch is automat-
ically locked whether it be open or set, con-
10 nections between said pivoted bar and said
plate, whereby a lateral movement is imparted
to said plate by said bar while admitting of
the releasing of said locking mechanism, a
cross-head pivoted between the rails of the
main track on each side of the switch and of

the side track and connections between each 15
of said cross-heads and the laterally-extend-
ed arms of said pivoted bar said cross-head
being adapted to be operated by devices sup-
ported by the car, substantially as described.

In testimony that I claim the foregoing as 20
my invention I have signed my name, in
presence of the subscribing witnesses, this
26th day of July, 1897.

BENGEL JOY KELLY.

Witnesses:

J. H. GIBSON,
J. F. YATES.