

(No Model.)

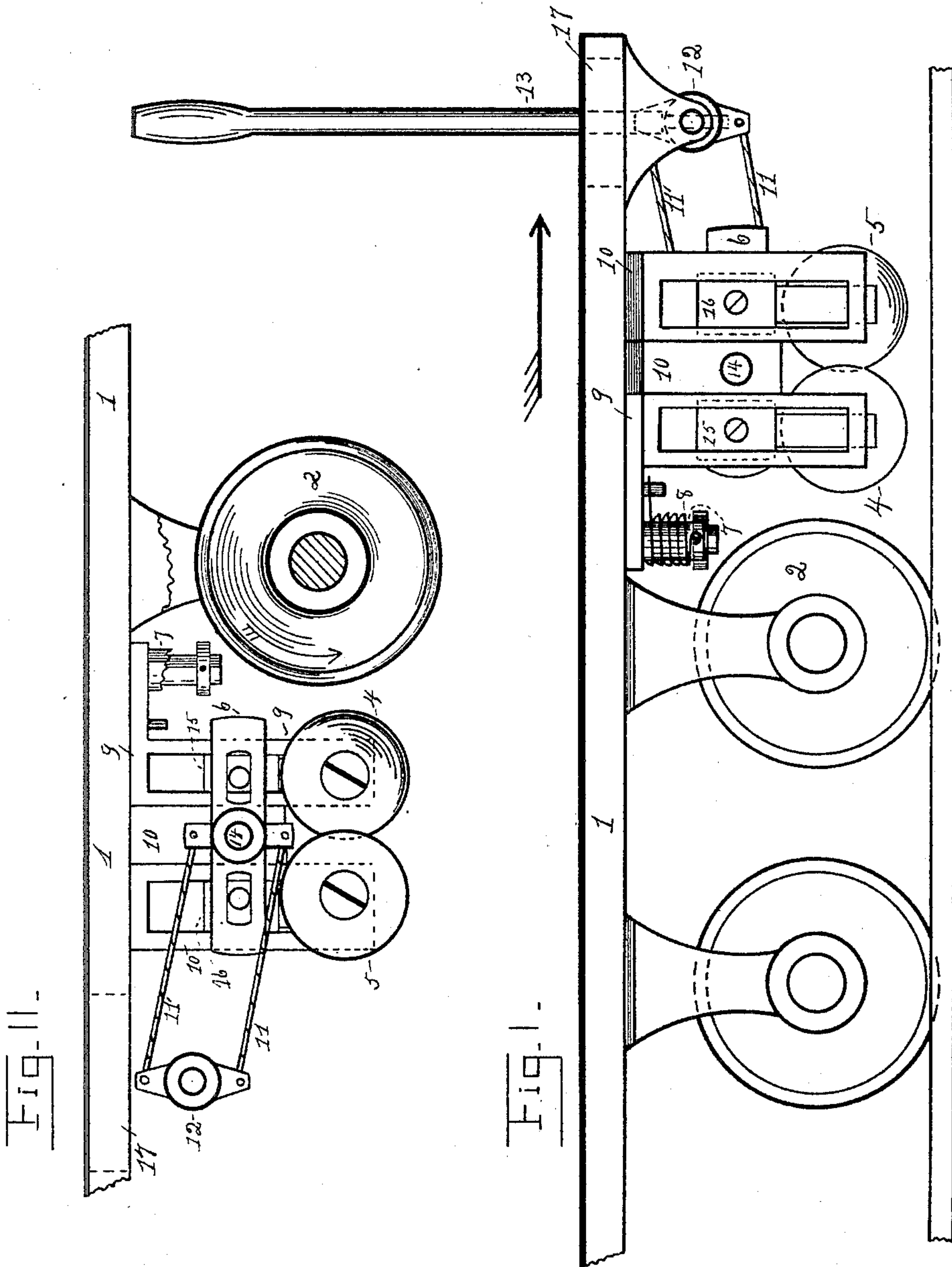
2 Sheets—Sheet 1.

G. W. DOWNES.

DEVICE FOR OPERATING RAILWAY SWITCHES.

No. 581,701.

Patented May 4, 1897.



WITNESSES:

Thos. L. Frohn
J. Wilson Fairbank

INVENTOR

George W. Downes.

BY

Samphorn H. Scott.

ATTORNEY.

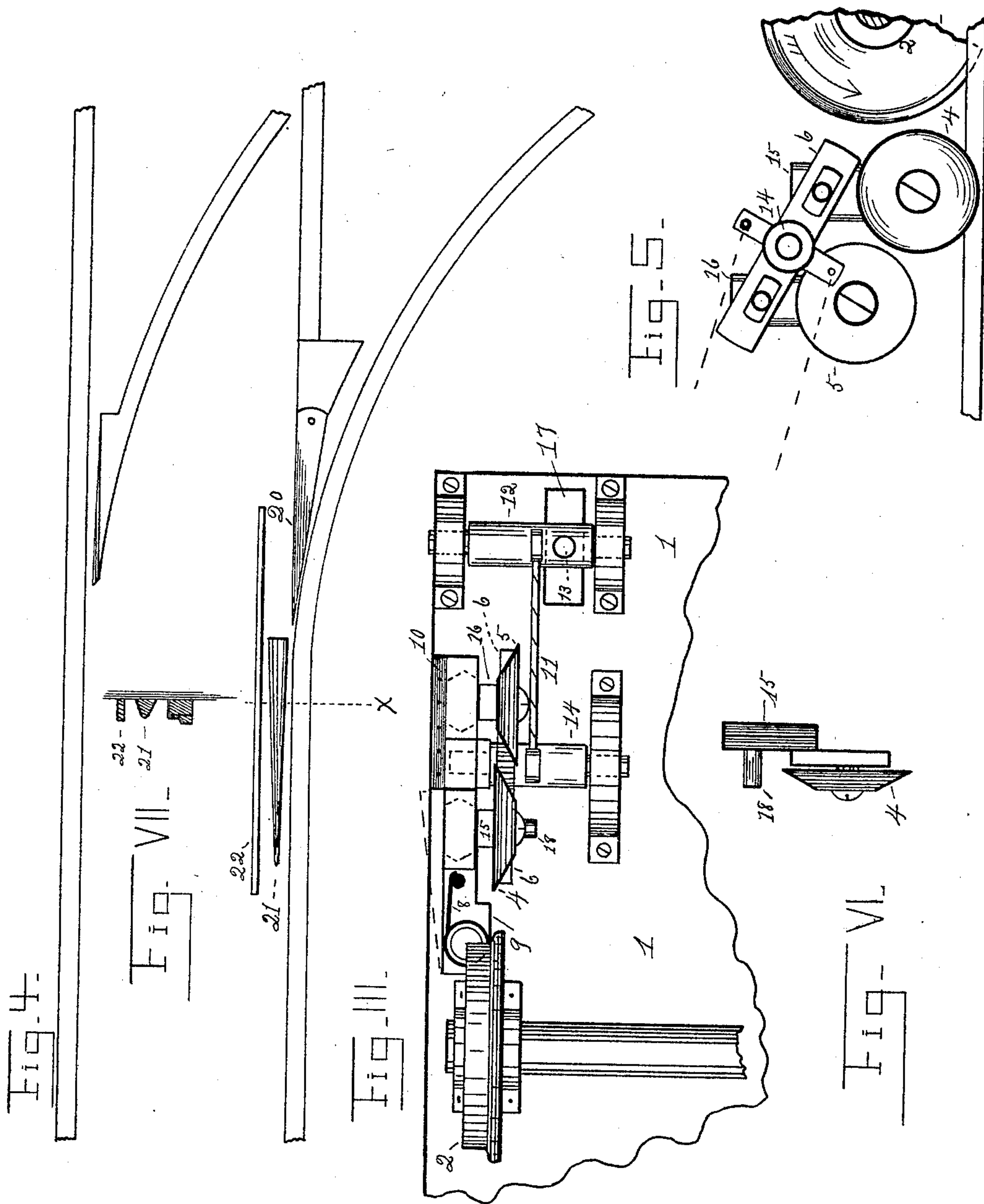
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INVENTOR

George W. Downes.
BY
Samuel H. Scott.
ATTORNEY.

UNITED STATES PATENT OFFICE.

GEORGE W. DOWNES, OF NEWARK, NEW JERSEY.

DEVICE FOR OPERATING RAILWAY-SWITCHES.

SPECIFICATION forming part of Letters Patent No. 581,701, dated May 4, 1897.

Application filed August 26, 1896. Serial No. 603,967. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. DOWNES, a citizen of the United States, and a resident of the city of Newark, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Devices for Operating Railway-Switches, of which the following is a specification.

My invention relates to mechanism for operating railway-switches from the car without a special attendant at each switch, the latter being under control of the motorman or driver while on the car by means of the said mechanism comprising my invention.

While the device is intended and adapted more especially for electric street or horse cars, it is equally applicable in principle to any railway-car.

The invention consists in the application to a car truck or body of a pair of bevel-faced disk wheels or rollers which alternately come in contact and engage with the switch-tongue. This is done by the motorman operating a hand-lever which extends from the mechanism under the car up and through a slot in the forward platform.

The invention is more particularly set forth in the following description and illustrated by the accompanying drawings, which form a part of the specification.

In the said drawings, Figure 1 is a view in side elevation of my invention as attached to a car-truck. Fig. 2 is a view of the same from the opposite side thereof minus the hand-lever, the support for rock-shaft 12, and spring 8, all omitted for greater clearness in the drawings. Fig. 3 is a plan view of Fig. 1 as seen from the under side of the car. Fig. 4 is a plan view of track and switch-tongue particularly adapted for operation in connection with my invention. Fig. 5 is a view in side elevation of disk-rollers, showing roller 4 in position to act upon the switch-tongue. This is a disconnected detail view. Fig. 6 is a detail edge view of roller 4 and its support 15. Fig. 7 is a view in cross-section, taken on line x of Fig. 4, of guiding stationary tongue 21 and adjacent parts.

In the said drawings the numeral 1 represents a car-truck, and 2 one of the wheels thereof. The disk wheels or rollers 4 and 5 are counterparts of each other, having beveled faces on one side, so that the extreme periphery approximates a sharp edge. Each of these rollers 4 and 5 is pivoted, respectively, to blocks 15 and 16, with their beveled faces standing in opposite directions. Their carrying-blocks 15 and 16 are each mounted in a frame having suitable guideways therein to receive said blocks, so that they are capable of a vertical "up-and-down" movement therein, working in unison, so that when roller 5 is elevated to a non-active position the other roller 4 is in its active position, and vice versa. The first position just mentioned is seen in Fig. 5. The idle position, when neither roller is active, is seen in Figs. 1 and 2.

The forward frame 10, which supports the block 16, is fixed rigidly to the truck of the car. The rear frame 9, however, is swiveled on a post, so as to be capable of an outward horizontal swing. This is necessary in the turning of a curve, as will be understood. The line of outward swing is seen in the dotted lines in Fig. 3. The said rear frame 9 is spring-actuated toward frame 10, so that they stand normally in line, as seen in Figs. 1, 2, and 3. The exact form of spring is unimportant. I prefer a spiral spring 8, surrounding the sleeve 7 of frame 9, connected to a rigid washer on said post on the car-truck and bearing in turn against a stud on said frame 9. The switch-actuating rollers 4 and 5 can be held in three positions—first, the idle position, as seen in Figs. 1 and 2; second, the rear roller 4 down when desiring to turn a curve, and, third, the forward roller 5 down when desiring to keep the straight track. The rollers are thrown in these positions directly by the rock-shaft 14, on which is a cross-bar 6, which is slotted near each end, and in these slots a post on each block 15 and 16 plays. The block 15 and post 18 therein are more clearly seen in Fig. 6. The essential features thus being described, I will now pass to the consideration of the mechanism which places the rollers under control of the motorman. A rock-shaft 12 is mounted on the car-truck parallel with rock-shaft 14, said rock-shafts having similar short cross-arms thereon. These cross-arms are connected by wire ropes or chains 11 and 11'. A hand-lever 13 passes through a slot 17 in the car-platform and is inserted in a perforation or socket in rock-

eled faces on one side, so that the extreme periphery approximates a sharp edge. Each of these rollers 4 and 5 is pivoted, respectively, to blocks 15 and 16, with their beveled faces standing in opposite directions. Their carrying-blocks 15 and 16 are each mounted in a frame having suitable guideways therein to receive said blocks, so that they are capable of a vertical "up-and-down" movement therein, working in unison, so that when roller 5 is elevated to a non-active position the other roller 4 is in its active position, and vice versa. The first position just mentioned is seen in Fig. 5. The idle position, when neither roller is active, is seen in Figs. 1 and 2.

The forward frame 10, which supports the block 16, is fixed rigidly to the truck of the car. The rear frame 9, however, is swiveled on a post, so as to be capable of an outward horizontal swing. This is necessary in the turning of a curve, as will be understood. The line of outward swing is seen in the dotted lines in Fig. 3. The said rear frame 9 is spring-actuated toward frame 10, so that they stand normally in line, as seen in Figs. 1, 2, and 3. The exact form of spring is unimportant. I prefer a spiral spring 8, surrounding the sleeve 7 of frame 9, connected to a rigid washer on said post on the car-truck and bearing in turn against a stud on said frame 9. The switch-actuating rollers 4 and 5 can be held in three positions—first, the idle position, as seen in Figs. 1 and 2; second, the rear roller 4 down when desiring to turn a curve, and, third, the forward roller 5 down when desiring to keep the straight track. The rollers are thrown in these positions directly by the rock-shaft 14, on which is a cross-bar 6, which is slotted near each end, and in these slots a post on each block 15 and 16 plays. The block 15 and post 18 therein are more clearly seen in Fig. 6. The essential features thus being described, I will now pass to the consideration of the mechanism which places the rollers under control of the motorman. A rock-shaft 12 is mounted on the car-truck parallel with rock-shaft 14, said rock-shafts having similar short cross-arms thereon. These cross-arms are connected by wire ropes or chains 11 and 11'. A hand-lever 13 passes through a slot 17 in the car-platform and is inserted in a perforation or socket in rock-

shaft 12. It is apparent without further explanation that operating said lever 13 back and forth will throw the rollers 4 and 5 up and down as required.

5 The track adapted for my invention and forming a part thereof is illustrated in Figs. 4 and 7. An ordinary switch-tongue 20 is pivoted as usual. A tongue 21, solid with the surface, operates as a guide to rollers 4 and
10 5. A supplemental guide-rail 22 also serves to keep said rollers snugly and firmly guided.

The ropes or chains 11 11' should be a little bit slack to permit the outward swing of frame 9.

15 Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A switch-operating mechanism comprising two bevel-faced disk-rollers, the forward
20 one mounted in a frame rigid with the car-truck, the rear one mounted likewise in a frame swiveled to the car-truck, substantially as described.

2. In combination with a car truck or body,
25 a bevel-faced disk-roller pivoted to a block, said block mounted in a rigid frame having a track or guideway therein, a second roller mounted likewise in a frame swiveled to the car-truck, a rock-shaft having a cross-arm
30 thereon engaging with and operating said blocks, substantially as described.

3. In combination with a car-truck a switch-operating mechanism comprising rigid frame
35 10, having a guideway therein, outwardly-swinging spring-actuated frame 9 having a guideway therein, blocks 15 and 16 mounted respectively in said frames, rollers 4 and 5

pivoted on said blocks, rock-shaft 14 having cross-arm 6 thereon, rock-shaft 12 having cross-arm thereon connected to shaft 14, all
40 arranged substantially as described.

4. A switch-operating mechanism comprising two bevel-faced disk-rollers the forward one mounted in a frame rigid with the car-truck, the rear one mounted likewise in a
45 frame swiveled to the car-truck, in combination with a fixed car-rail, a horizontally-shifting pivoted switch-tongue, a fixed tongue extending oppositely from said pivoted tongue and a supplemental guide-rail parallel with
50 the track, all substantially as described and set forth.

5. A switch-operating mechanism comprising rigid frame 10 having guideway therein; outwardly-swinging spring-actuated frame 9
55 having guideway therein; blocks 15 and 16 mounted respectively in said frames; rollers 4 and 5 pivoted on said blocks; rock-shaft 14 having cross-arm 6 thereon and connected with rock-shaft 12 having a cross-arm or
60 equivalent thereon all in combination with a fixed car-rail, a horizontally-shifting switch-tongue, a fixed tongue extending oppositely thereto and a supplemental guide-rail, all
65 substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 20th day of August, 1896.

GEORGE W. DOWNES.

Witnesses:

JAMES W. SCOTT,
LANPHEAR H. SCOTT.