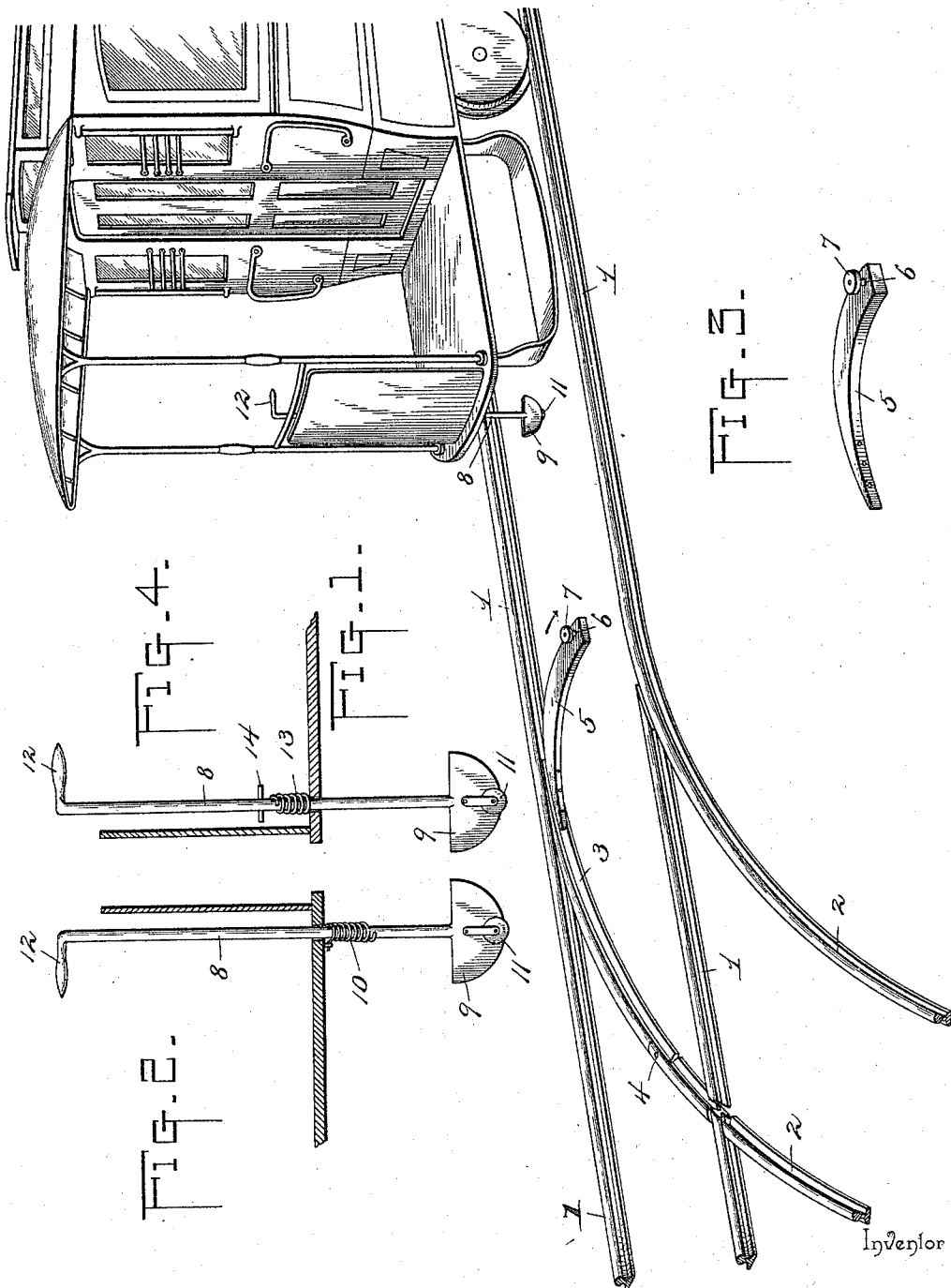


(No Model.)

C. E. GROVES.
STREET RAILWAY SWITCH.

No. 579,575.

Patented Mar. 30, 1897.



Witnesses
Harry L. Amer.
[Signature]

By his Attorneys,

Charles E. Groves
[Signature]

UNITED STATES PATENT OFFICE.

CHARLES E. GROVES, OF ATTICA, OHIO.

STREET-RAILWAY SWITCH.

SPECIFICATION forming part of Letters Patent No. 579,575, dated March 30, 1897.

Application filed April 10, 1896. Serial No. 587,020. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. GROVES, a citizen of the United States, residing at Attica, in the county of Seneca and State of Ohio, have invented a new and useful Street-Railway Switch, of which the following is a specification.

My invention relates to street-railway switches, and has for its object to provide a simple, inexpensive, and efficient construction and arrangement of parts whereby a switch-rail may be adjusted to either open or close the side-track without necessitating either stopping the car or dismounting therefrom.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a switch mechanism embodying my invention, the front end of a car mounted upon the track being indicated to show the car mechanism. Fig. 2 is a detail view of the car mechanism, showing the contiguous portion of the car-platform in section to show the means for maintaining the car mechanism normally in its operative position. Fig. 3 is a detail view of the switch-rail extension and the projection carried thereby and forming the track mechanism. Fig. 4 is a detail section showing the car mechanism provided with a spring for holding it normally elevated, whereby it must be depressed against the tension of the spring to bring the cam into operative relation with the track mechanism.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the main-track rails, 2 the side-track rails, and 3 a switch-rail pivoted to the extremity of the outer side-track rail, as at 4. The switch-rail is provided with an extension or arm 5, which terminates short of the plane of the treads of the rails, as indicated in Fig. 1, and curves inwardly to the center of the road-bed or to a point midway between the main-track rails, where it terminates in a vertical projection or pin 6, preferably fitted with a horizontal antifriction-roll 7. This constitutes the track mechanism, which is illustrated in the drawings as being entirely exposed, it

being deemed unnecessary to show the means employed for covering and protecting the extension or arm 5, such means being similar to those now in use for like purposes.

The car mechanism consists of a vertical spindle 8, mounted for rotary adjustment upon the dash or other suitable part of the car and provided at its lower end with a cam consisting of a semicircular plate 9, said plate being adapted, by reason of the rotary adjustability of the spindle, to be arranged at an inclination either toward or from the outer main-track rail, the latter arrangement being shown in Fig. 1, whereby when the face of the cam strikes the projection or the antifriction-roller carried thereby the extension or arm of the switch-rail will be moved in the direction indicated by the arrow in Fig. 1, and hence the extremity of the switch-rail will be removed from the outer main-track rail. An actuating-spring 10 is employed in connection with the spindle to hold the cam normally depressed, and a bearing-roll 11 is mounted on the rear or inoperative face of the cam and projects slightly below the lower edge thereof to prevent contact of the lower edge of the cam with the road-bed. The spring 10, in addition to holding the spindle yieldingly in its depressed or operative position, is designed to normally hold the cam in the vertical plane of the longitudinal center of the car or in the plane of the direction of movement of the car. Hence the normal position of the cam is such as not to affect the track mechanism, and when it is desired to change the position of the switch-rail the spindle should be turned in one direction or the other against the tension of the spring by means of the crank or handle 12.

The advantage in arranging the cam-plate normally in its depressed position in the plane of the longitudinal center of the car and providing it with means whereby it may be turned in either direction resides in the fact that it adapts the mechanism for shifting a switch-rail in either direction by an adjustment of the cam-plate involving only the turning thereof. The cam-plate is adapted to engage the same pin to either set or open the switch, and hence by using a car mechanism of the construction described the track mechanism is simplified.

I preferably mount the cam-plate to yield upwardly while normally occupying a depressed position, and provided with an anti-friction-roll, as described, in order to avoid
 5 the necessity, when approaching a switch, of depressing the cam-plate to its operative position, and inasmuch as the cam-plate is upwardly yielding it is adapted to pass over
 10 obstructions in the road-bed without injury to the mechanism. In other words, the car mechanism above described is adapted to move a switch-rail in either direction, and the only operation necessary to accomplish
 15 either movement is the turning of the cam-plate to occupy an angular position in one direction or the other, which is simplifying the task of the operator and at the same time enabling a single cam-plate to be used in
 20 connection with a single switch-pin in order to set the switch-rail in either position.

In Fig. 4 I have shown a slightly-modified arrangement of the parts of the car mechanism wherein an actuating-spring 13, which is
 25 used in lieu of the spring 10, (shown in Fig. 2,) is employed in connection with the spindle 8, said spring being of the expansion class, to hold said spindle and the cam-plate 9 elevated
 30 out of operative relation with the track mechanism. In order to enable the parts to be brought into operative relation with the track mechanism, I provide a foot-rest 14. It will
 35 be understood that the operation of the parts in this arrangement, in so far as the spindle must be turned to one side or the other to shift the switch-rail as desired, is the same as in the construction above described.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit

or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. In a switch, the combination with track mechanism including a laterally-movable pin
 45 operatively connected with the switch-rail, of car mechanism including an upwardly-yielding cam-plate having a vertical axis, and an actuating-spring to normally and
 50 yieldingly hold the cam-plate in its depressed position and in a plane parallel with the direction of movement of the car, whereby the plate may be deflected in either direction
 55 from said normal position to engage the pin of the track mechanism and move the same in either direction, substantially as specified.

2. In a switch, the combination with a laterally-movable pin operatively connected
 60 with a switch-rail, of car mechanism having a cam-plate provided with a vertical spindle, an actuating-spring for yieldingly holding the cam-plate in a depressed position and in
 65 a plane parallel with the direction of movement of the car, said plate being adapted for deflection in either direction from its normal position to engage said pin, and a
 70 bearing-roller carried by the cam-plate and projecting below the lower edge thereof to encounter and ride over obstructions on the road-bed, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES E. GROVES.

Witnesses:

CHAS. C. SUTTON,
 W. S. FORCE.