(No Model.) 2 Sheets—Sheet 1.

E. G. JAY.

SWITCHING APPARATUS FOR STREET CARS.

No. 579,984. Patented Apr. 6, 1897.

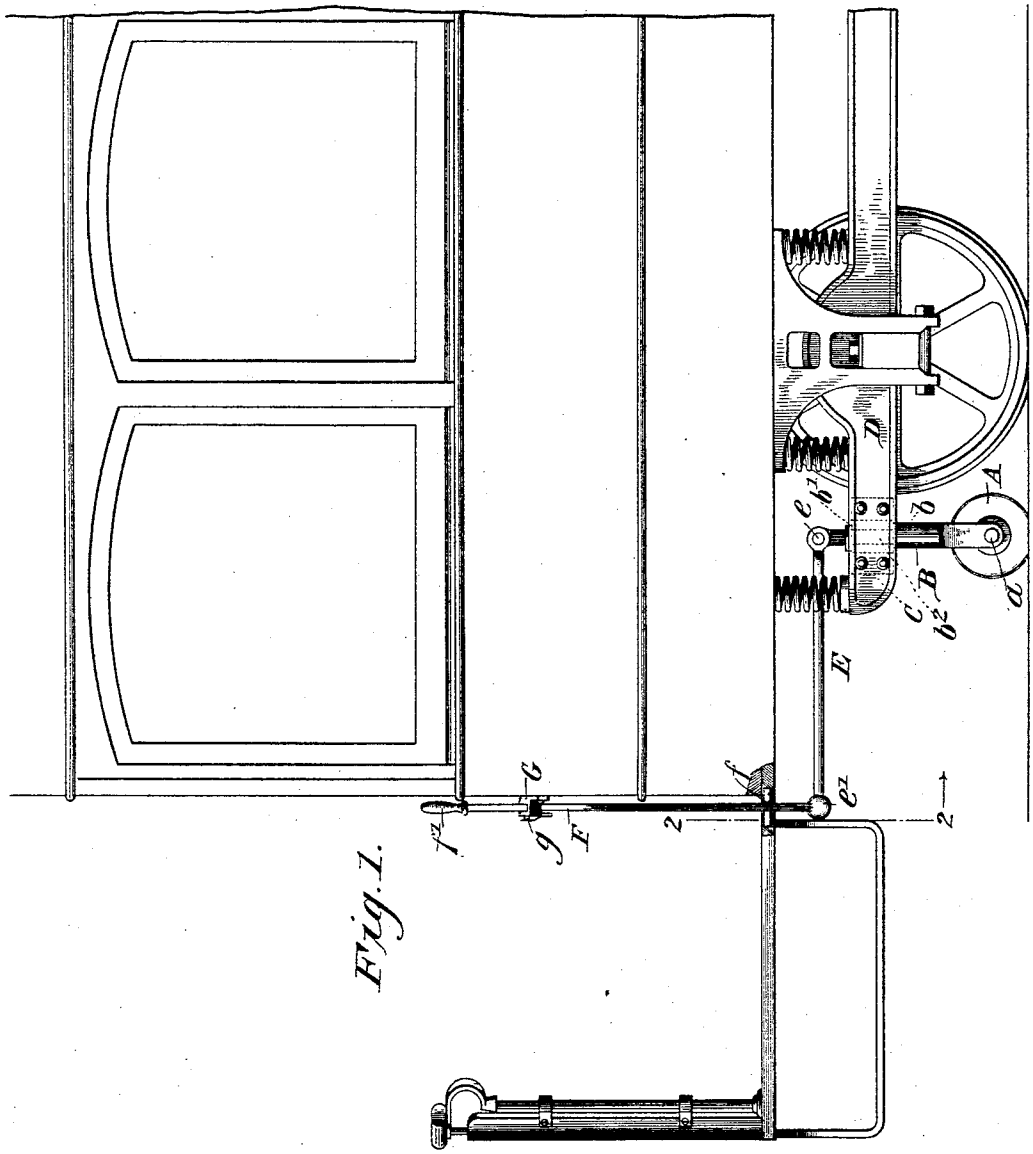

Fig. 1.

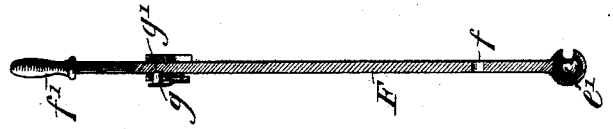

Fig. 5.

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(No Model.) 2 Sheets—Sheet 2.

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No. 579,984. Patented Apr. 6, 1897.

Fig. 2.

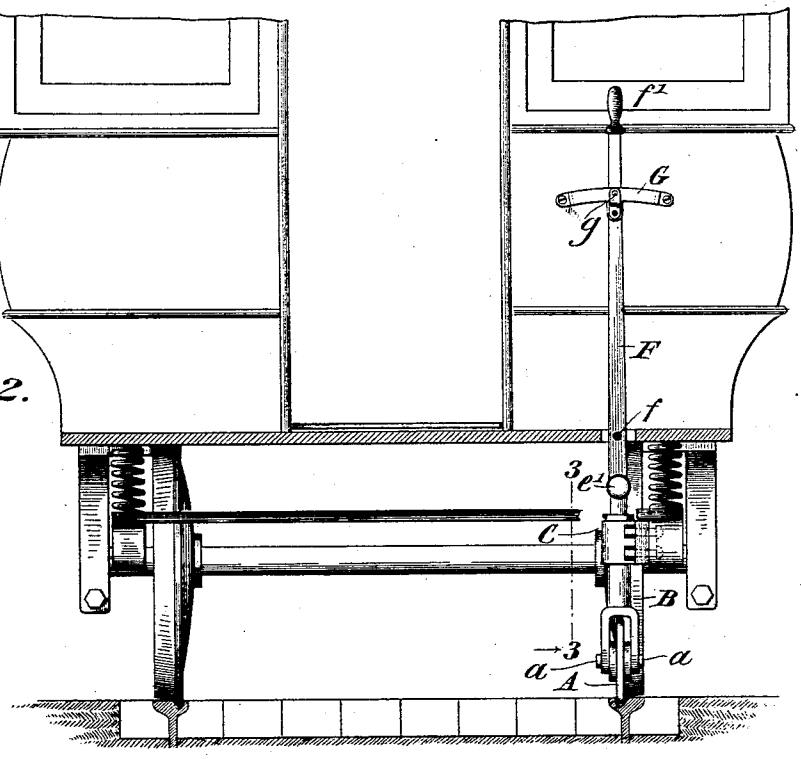


Fig. 3.

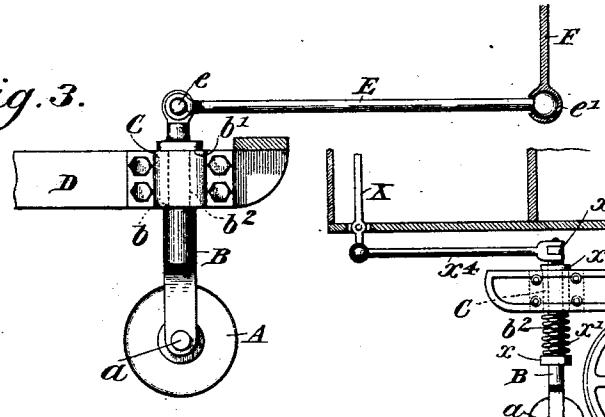
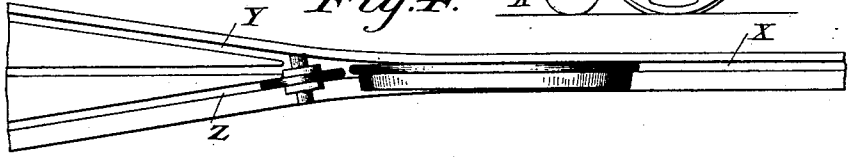


Fig. 6.

Fig. 4.



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UNITED STATES PATENT OFFICE.

EDWARD G. JAY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO SAMUEL S. JAY, OF ABERDEEN, AND JOHN G. JAY, OF BALTIMORE, MARYLAND.

SWITCHING APPARATUS FOR STREET-CARS.

SPECIFICATION forming part of Letters Patent No. 579,984, dated April 6, 1897.

Application filed July 9, 1896. Serial No. 598,580. (No model.)

To all whom it may concern:

Be it known that I, EDWARD G. JAY, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Switching Apparatus for Street-Cars, of which the following is a specification.

Ordinarily street-cars are switched by means of a pivoted tongue or rail-section operated either manually, by the weight of the horse, by a pull-chain, or by a shifting device carried by the car. In bad weather this pivoted rail is apt to get out of order, and there is always liability of an obstruction interfering with its proper operation.

The object of my invention is to switch street-cars, and particularly cable and electric cars, by improved devices carried by the car, which engage with properly-formed stationary rails at the various switches.

In carrying out my invention I provide a small wheel or trolley, and mount it in suitable bearings in a strong upright frame pivoted to move about a vertical axis in a stout bearing-bracket close to one of the front wheels of the car. A handle on the front platform within easy reach of the driver or motorman is connected with the trolley-carrying frame and enables the motorman to shift it to switch the car in the desired direction.

In the accompanying drawings, Figure 1 shows a side elevation of a portion of a street-car with my improvements applied. Fig. 2 shows a transverse section on the line 2 2 of Fig. 1. Fig. 3 shows a detail view in section on the line 3 3 of Fig. 2. Fig. 4 is a diagram illustrating the shape of the grooved rails at the switch and the manner in which the switch-trolley and the main carrying-wheel of the car traverse the grooves. Fig. 5 is a detail view of the handle employed for operating the switch-trolley. Fig. 6 is a detail view of a modification of my invention.

My improvements may be applied to street-cars of all sorts. In the drawings they are shown as applied to a street-car of well-known construction. The switch wheel or trolley A is provided with laterally-projecting stud-axles a, having bearings in the forked or bifurcated end of a vertical supporting-frame B. This frame is shouldered at b and b', the reduced portion b^2 having a bearing in a bracket C, firmly bolted to the forwardly-projecting end of one of the side beams D of the truck. The trolley is of a width about sufficient to fill the groove of an ordinary grooved rail. As shown in Fig. 2, however, it does not quite extend to the bottom thereof, although its width is approximately the same as that of the groove. It is approximately of the same general shape as the flange on the ordinary car-wheel. The supporting-frame B is made strong and capable of withstanding any lateral strain to which it may be subjected. It is made short, so that there is but little leverage between its upper and lower ends, and therefore lateral strain applied to the trolley A will be transmitted directly to the truck-frame and will correspondingly shift the main carrying-wheels. A link E is pivotally connected at e to the upper end of the frame B, and its front end is connected at e', preferably by a ball-and-socket joint, with an operating-lever F, which is pivoted at f to the platform of the car, through which it extends, and at its upper end is provided with a handle f'. A guide G of ordinary construction may be employed, and this may be provided with a spring-bolt g of ordinary construction adapted to engage with a recess g' in the operating-lever when it is in the central position indicated in Fig. 2. When the bolt is thus engaged, the operating-lever will not be moved by the ordinary jolting of the car, but it may be moved in either direction without any manipulation of the bolt at the will of the operator.

It is a matter of considerable importance that the switching-trolley should be located close to one of the main carrying-wheels, because if it were located, for instance, at the front of the platform the car would be shifted to such an extent before the front carrying-wheels arrived at the switch that they would jump the track; but, as indicated in Fig. 4, where the carrying-wheel immediately follows the switching-trolley, it will be deflected in the proper direction and to a sufficient extent only to cause it to traverse the same groove as

that traversed by the trolley. The switching-trolley, it will be also observed, is close to the truck-frame. Its supporting-frame and the bearing-bracket may be made strong and substantial, and thus capable of withstanding all strains without distortion.

The operating mechanism shown is that preferred, but obviously it may be varied. It will be observed by reference to Fig. 4 that no pivoted tongue or pivoted rail-section is employed. A straight groove X joins the branching grooves Y and Z in such manner as to permit the switching-trolley to be shifted in the desired direction and to permit the main carrying-wheel to move correspondingly with the lateral movement of the trolley. Two such trolleys might be employed, one on each side of the car, but one is found to be sufficient.

In Fig. 6 a modification is shown. In this instance the frame B has a collar at x, between which and the bracket C is interposed a spiral spring x'. A collar x^2 is arranged on the portion b^2 of the frame which extends through the bearing-bracket C, and limits the downward movement of the frame, the construction being such that the trolley-wheel A may have a slight vertical movement when meeting obstructions in the track. The upper end of the axle b^2 has a crank-arm x^3 conneted by a link x^4 to the lower end of an operating-lever X. By this lever the motorman may turn the wheel to the right or to the left in the manner before described.

I claim as my invention—

The combination of the wheels and axle, the truck-frame having the side beams D extending over the axle, the car-body resting on springs mounted on the side beams, the switching-trolley, the vertical frame in which it is mounted and the axis of which is in line with the flange on one of the front wheels so that the trolley may traverse the groove of a grooved rail, a bracket secured to one of the side beams close to the edge of one of the front wheels and in which the trolley-supporting frame has its bearing and is free to move about a vertical axis, a handle for operating the trolley-frame, rods connecting the handle with the frame, and a stationary switch-point in the track with which the trolley engages to shift the car bodily.

In testimony whereof I have hereunto subscribed my name.

EDWARD G. JAY.

Witnesses:
JAMES C. MIDLER,
J. W. ARMSTEAD.