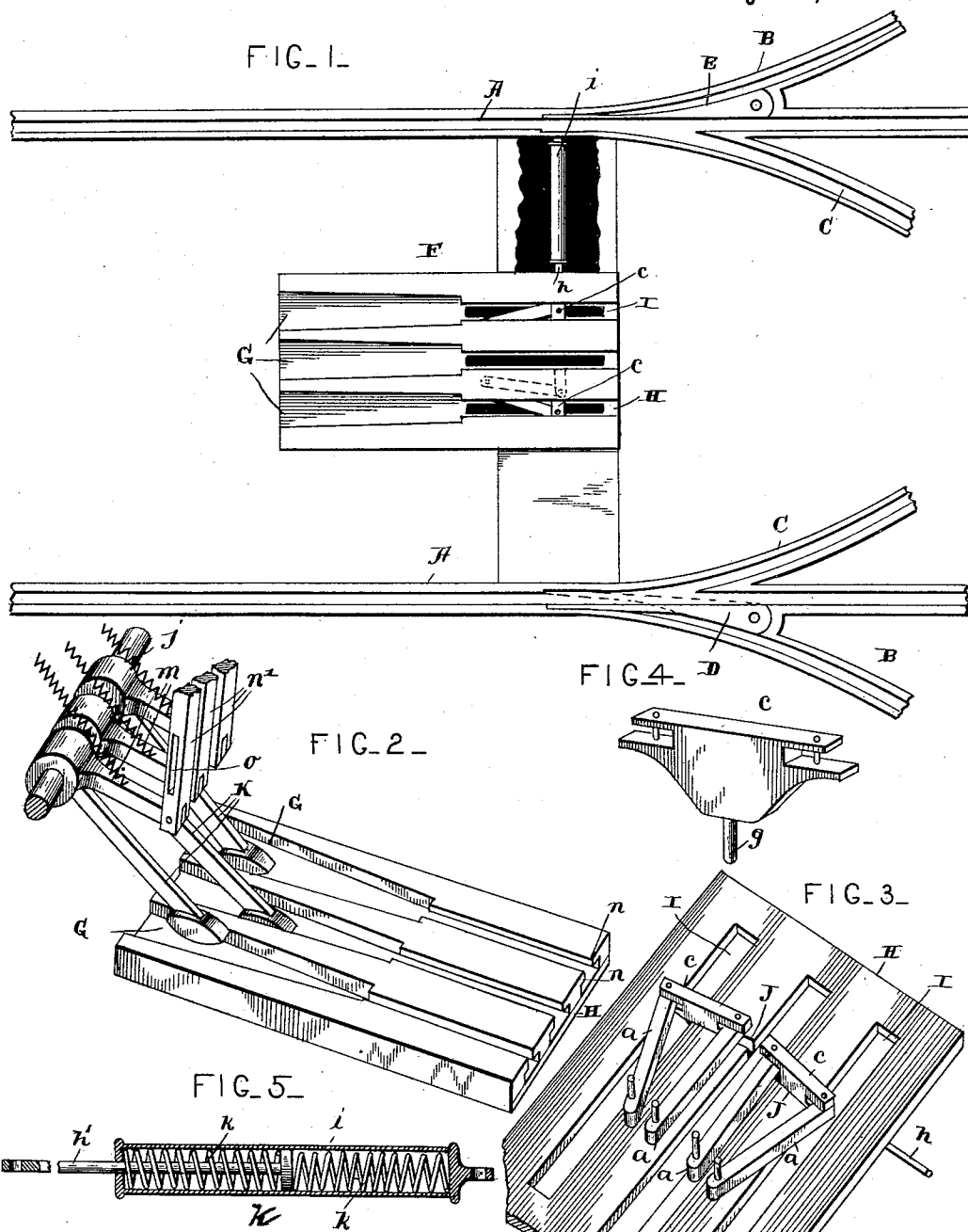


(No Model.)

R. H. SNIVELY.  
SWITCH FOR STREET RAILWAYS.

No. 475,475.

Patented May 24, 1892.



WITNESSES

*Geo. E. French*

*Roland A. Fitzgerald*

INVENTOR

*R. H. Snively*

*for*  
*Lehmann & Pattison*  
*Atty's*

# UNITED STATES PATENT OFFICE.

RUSSELL H. SNIVELY, OF LOUISVILLE, KENTUCKY.

## SWITCH FOR STREET-RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 475,475, dated May 24, 1892.

Application filed July 13, 1891. Serial No. 399,397. (No model.)

*To all whom it may concern:*

Be it known that I, RUSSELL H. SNIVELY, of Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Switches for Street-Railways; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in switches for street-railways; and it consists in the construction and arrangement of parts which will be fully described hereinafter, and particularly referred to in the claims.

The object of my invention is to provide a mechanism for operating the switches of street-railways by the driver directly from the car without having to leave or stop the car, or without the employment of a man or boy for this purpose, by placing his foot upon a lever, which is placed in a convenient position to be operated thereby.

In the drawings, Figure 1 is a plan view of a three-way switch with my invention applied thereto, a part of the bed between the tracks being shown broken away. Fig. 2 is a perspective view of the guideway and the levers which are attached to the car, the levers being shown in a position to enter the guideway. Fig. 3 is a detached perspective view of the pivoted levers for operating the rail and which are engaged by the levers upon the car. Fig. 4 is a detached perspective view of the end piece which connects the free ends of the said pivoted levers and to which the rod which operates the rail is attached. Fig. 5 is a detached view of the rod which connects the rail and the end piece, showing its interior construction.

A indicates the main track, and B C two side or switch tracks, which branch outward from the main track in opposite directions. Pivoted at the junction of the main and side or switch tracks are the two wedge-shaped or tapering rails D E, which are pivoted at their widest ends, as shown, and which are of the ordinary construction used in street-railway switches, and do not therefore of themselves form any part of my invention.

Placed between the two rails of the main track is a three-way guide, which is preferably sunk down until its upper face is flush with the surface of the road-bed, and the three grooves or guideways have their approaching ends converging, as shown, so as to permit of the free entrance of the operating-levers which are upon the car. The walls of these guideways G have inwardly-extending flanges *n*, beginning at the inner edges of the converging portions thereof and extending to their opposite ends, if so desired, so that the slots of the guideways will be as small as possible over the working parts of the operating mechanism, thus affording them better protection than they would otherwise have. The under or ground plate H is provided with the three longitudinal vertical slots I, which are connected by the cross-slots J, as shown, and which prevent the accumulation of dirt in the guideways by allowing it to pass through into the excavation.

Pivoted to the ground-plate H under the two central longitudinal walls of the guideway are the four levers *a*. Two of them are connected by means of the cross-piece *c*, which makes two pairs of operating-levers, as shown. This cross-piece *c* is longer than the distance between the pivotal points of the opposite ends of the levers, together forming an incline upon each side, so that when one of the levers K of the car is forced downward and guided into one of the guideways G the edge of one of the levers *a* is engaged by the lower end of the lever, and the two levers are turned upon their pivots, and the cross-piece *c*, connected thereto, is moved laterally in the slot J.

Extending downward from the cross-pieces *c* are the pins *g*, to which one end of the connecting-rods *h* are connected, the opposite ends of these rods being connected to the free ends of the pivoted rail-pieces D and E. These connecting-rods *h* consist of a tube *i*, into which the inner end of the rod *h'*, carrying a head on its inner end, extends, and placed upon opposite sides of the head of this rod *h'* within the tube *i* are the spiral springs *k*, which engage the head upon the said rod *h'* and normally hold its inner end about the center of the tube *i*. By means of this construction a normally-contracting connection is formed between the pivoted rails and cross-

piece, so that the cross-pieces *c* can be given more movement than it is necessary for the free ends of the pivoted rail-pieces *D* and *E* to have, which will cause the rail-piece which  
 5 is operated to be held tightly in its place by the tension of the springs *k*, as will be readily understood.

The ends of the levers *K* are made wedge-shaped, as shown in Fig. 2, so that they will  
 10 freely enter the guideways *G* and force the levers *a* to one side, and also to allow the car a rocking motion in running over uneven tracks without straining or twisting the levers in any manner or causing them to bind in the  
 15 guideways, as they would otherwise be liable to do.

The operation of my invention is as follows: When it is desirous to operate both of the pivoted rails in the same direction, it will be  
 20 necessary to operate one of the side levers and the middle lever. If it is desired to only operate the left-hand rail, then the left-hand lever is operated and if the right-hand rail is to be operated then the right-hand lever only  
 25 is operated. In order to enable either one of the side levers to be operated simultaneously with the middle lever, the middle lever extends in advance of the other two levers, as shown, so that it will have passed by the inner  
 30 end of the cross-piece *c*, which is to be operated by the side lever, and will not therefore interfere with it in any manner.

The levers *a* are sustained by their pivotal pins, as is also the cross-piece which connects them, to avoid friction of the levers on the  
 35 ground-plate, which would otherwise occur.

The purpose of the two springs in the tube *i* is to prevent any breaking of the parts should the pivoted rails be obstructed by any  
 40 unyielding substance.

Fixed to the under side of the car-platform is a pivotal rod *j*, upon which the bell-crank levers *K* are journaled, and loosely connected to the upper ends of these bell-crank levers  
 45 *K* are the operating-rods *n'*. These rods *n'* pass up through an opening in the platform of the car to a convenient position to be operated by the driver, and are each provided with a vertical slot or opening *o*, through  
 50 which a transverse pin passes and which holds the rods *n'* steady while being operated by the driver.

Having thus described my invention, I claim—

55 1. In a switch for railways, a guideway having a transverse slot, two levers pivoted to one side of the guideway, a cross-piece connecting the lever which is longer than the dis-

tance between their pivotal points, having a projection extending through the said slot, 60 the main and side tracks, the pivoted rail, and a rod connecting the said cross-piece projection and the free end of the pivoted rail, all combined substantially as specified.

2. In a switch, a guideway, a wedge-shaped 65 pivoted device at one side of the guideway, the side and main tracks, a pivoted rail, and a normally-contracting connection between the said wedge-shaped device and the pivoted rail, the parts combined substantially as set 70 forth.

3. In a switch, a guideway having three ways, two wedge-shaped devices pivoted, respectively, at opposite sides of the central 75 way, levers upon the car to move in the said guideways, side and main tracks, two pivoted rails, and connections between the pivoted rails and the said wedge-shaped devices, the parts combined to operate substantially as 80 specified.

4. In a switch, a guideway having three ways, two wedge-shaped devices pivoted, respectively, at opposite sides of the central 85 way, side and main tracks, two pivoted rails, connections between the pivoted rails and the said wedge-shaped devices, and three levers upon the cars to move in the said guideways, one of the levers being in advance of the other two, the parts combined substantially as 90 shown and described.

5. In a switch, guideways, wedge-shaped devices pivoted at one side thereof, side and 95 main tracks, pivoted rails, connections between the pivoted rails and the said wedge-shaped devices, and levers upon the car having wedge-shaped lower ends which move in the said guideways, the parts combined substantially as specified.

6. A mechanism for operating a railway-switch, consisting of a pivotal rod secured to 100 the under side of the platform, the platform having vertical openings, bell-crank levers journaled upon the said pivotal rod which have their lower ends shaped to operate the switch mechanism, an operating-rod loosely 105 connected to the upper ends of the said levers and having vertical slots, and pins in the platform which pass through the said vertical slots, the parts combined substantially as specified. 110

In testimony whereof I affix my signature in presence of two witnesses.

RUSSELL H. SNIVELY.

Witnesses:

GEO. H. STUCKY,  
 LOUIS BARBAROUX.