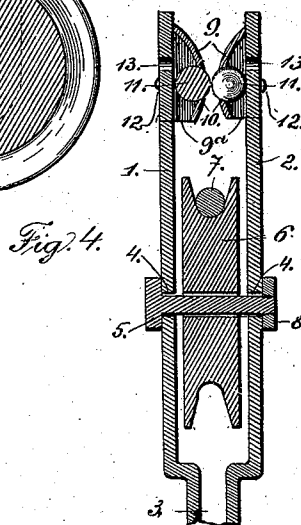
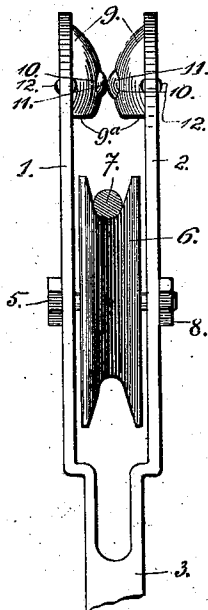
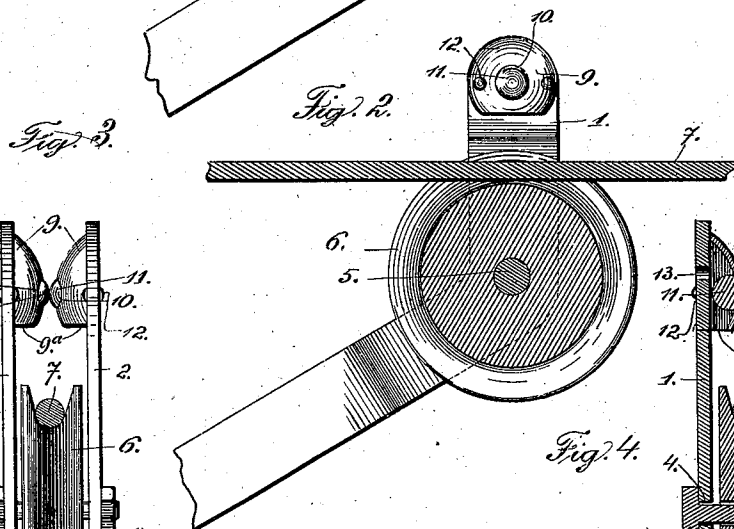
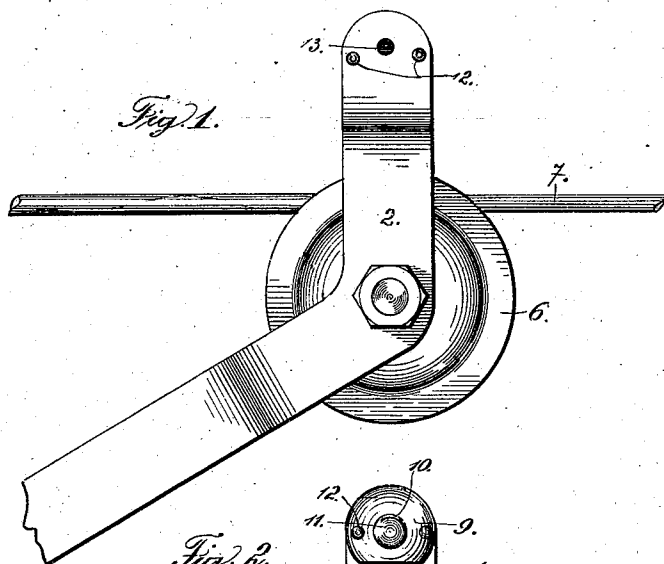


No. 847,701.

PATENTED MAR. 19, 1907.

F. & P. B. SCHMUNK.
TROLLEY AND CROSSOVER.
APPLICATION FILED JULY 10, 1906.

2 SHEETS-SHEET 1.



Witnesses:

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Inventors

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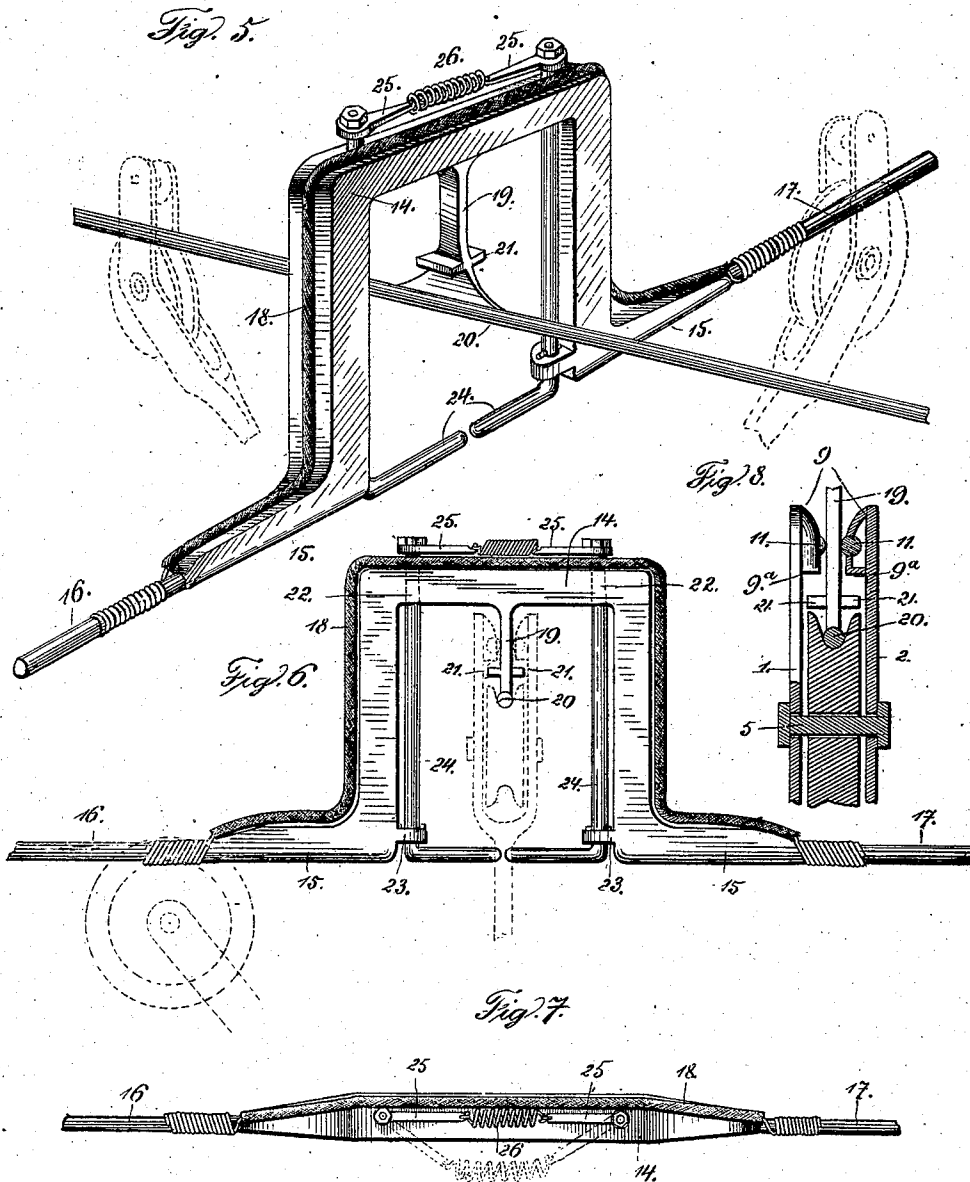
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

FREDRICH SCHMUNK AND PAUL B. SCHMUNK, OF BEAVER FALLS,
PENNSYLVANIA.

TROLLEY AND CROSSOVER.

No. 847,701.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed July 10, 1906. Serial No. 325,467.

To all whom it may concern:

Be it known that we, FREDRICH SCHMUNK and PAUL B. SCHMUNK, citizens of the United States of America, residing at Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Trolleys and Crossovers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to trolley-guards for electric railways, and its primary object is to provide a trolley with simple and effective means for preventing it from leaving the wire accidentally, but so constructed as to permit the trolley to be readily withdrawn from and applied to the conductor-wire when desired.

A further object of the invention is to provide a crossover device especially adapted for use in connection with the improved trolley-guard and of such construction as to adapt it to support the trolley-wires of crossing lines in such a manner as to allow the trolleys to readily pass or cross over wires arranged at right angles to the wire upon which the trolleys travel.

The construction of the improvement will be fully described hereinafter in connection with the accompanying drawings, which form a part of this specification, and its features of novelty will be set forth in the appended claim.

In the drawings, Figure 1 is a side elevation of a trolley-guard embodying the invention. Fig. 2 is a vertical section of the same. Fig. 3 is a front elevation of the trolley and guard. Fig. 4 is a transverse section of the same. Fig. 5 is a view in perspective of the crossover device adapted for use with the trolley-guard. Fig. 6 is a front elevation of the same. Fig. 7 is a top plan view, and Fig. 8 is a vertical section of the trolley and guard.

The reference-numerals 1 and 2 designate parallel arms of spring metal connected at their lower ends by a socket 3, adapted to be attached to the upper end of a trolley-pole. (Not shown.) Each of these spring-arms is formed with a bearing 4 for the journal 5 of the grooved trolley-wheel 6, the latter being adapted to run upon the wire 7. The journal 5 is in the form of a bolt secured by a nut

8. The arms 1 and 2 project above the trolley 6, and to the inner side of each of said arms adjacent to its upper end is secured a guard comprising an approximately semi-spherical or cup-shaped plate 9, having a central opening 10, through which projects an antifriction-ball 11. The oppositely-disposed plates 9 inclose the balls, and said plates are secured to the spring-arms by bolts 12. Thus the balls are held in position between the plates 9 and the inner surfaces of the arms 1 and 2, a portion of the balls protruding through the openings in the plates, so that the balls bear upon each other under the resilient pressure of the spring-arms. The lower sides 9^a of the plates are flattened for the purpose hereinafter explained.

The utility and operation of the device as thus far described will be readily understood. The balls are normally held together, and the conductor-wire 7 is confined between the arms, which serve as a guard to prevent the accidental disengagement of the wheel from the wire, the flattened faces 9^a of the plates holding the trolley to the wire.

When it is desired to release the trolley from the wire, a pull upon the usual trolley-rope employed for shifting trolleys will draw the balls into contact with the wire, which forces the spring-arms apart, so that the trolley-pole can be reversed. It will be apparent that the trolley can be engaged with the wire in the same manner, the spring-arms readily yielding outward for this purpose under the force of the pull-rope.

We preferably provide lubricating-openings 13 in the spring-arms adjacent to the cup-shaped plates for supplying oil to the antifriction-balls.

Figs. 5 to 8, inclusive, show a slightly-modified construction of the trolley-guard, adapting it for use with a crossover device, which will now be described.

The numeral 14 designates an arch-shaped frame adapted to be suspended in any suitable manner and having oppositely-extending arms 15 to support conductor-wires 16 and 17, connected by a wire 18, extending over the frame 14. Depending centrally from the frame 14 is a support 19 for a wire 20, the latter extending above and at right angles to the wires 16 and 17. The support-

ing-arm 19 is provided with oppositely-projecting horizontal arms 21 for the purpose hereinafter explained.

Supported within suitable bearings 22 and 5 23 of the frame 14 are two oppositely-disposed L-shaped arms 24, the upper ends of which project above the frame 14 and are connected together by horizontally-disposed arms 25, and a coil-spring 26, connecting the 10 inner ends of the arms 25.

A trolley traveling on the line represented by the wires 16 and 17 passes along under the frame 14 and the horizontal portions of the arms 24, while the trolley traveling on the 15 wire 20 strikes the arms 24, as illustrated by dotted lines in Fig. 6, swinging said arms apart, the spring 26 retracting the arms after the passage of the trolley.

In Fig. 8 the trolley-guard is shown in connection with the arm 19 of the crossover, the 20 flattened sides 9^a of the plates permitting them to pass over the arms 21, which, together with the depending support 19, guide the movement of the trolley through the 25 crossover.

What we claim, and desire to secure by Letters Patent, is—

The combination with a crossover comprising an arch-shaped frame having horizontal wire-supporting extensions, and a central depending guide provided with oppositely-projecting arms, of oppositely-disposed L-shaped arms supported in bearings 30 of the frame, a spring connecting the upper ends of said L-shaped arms, and a trolley-guard comprising parallel spring-arms, cup-shaped plates secured to the inner sides of the spring-arms, near their upper ends and beveled on their lower sides, antifriction-balls loosely supported by said plates and 35 adapted to be struck by said depending guide to separate said spring-arms. 40

In testimony whereof we affix our signatures in the presence of two witnesses.

FREDRICH SCHMUNK.
PAUL B. SCHMUNK.

Witnesses:

J. H. SHUSTER,
JOSEPH BECKER.