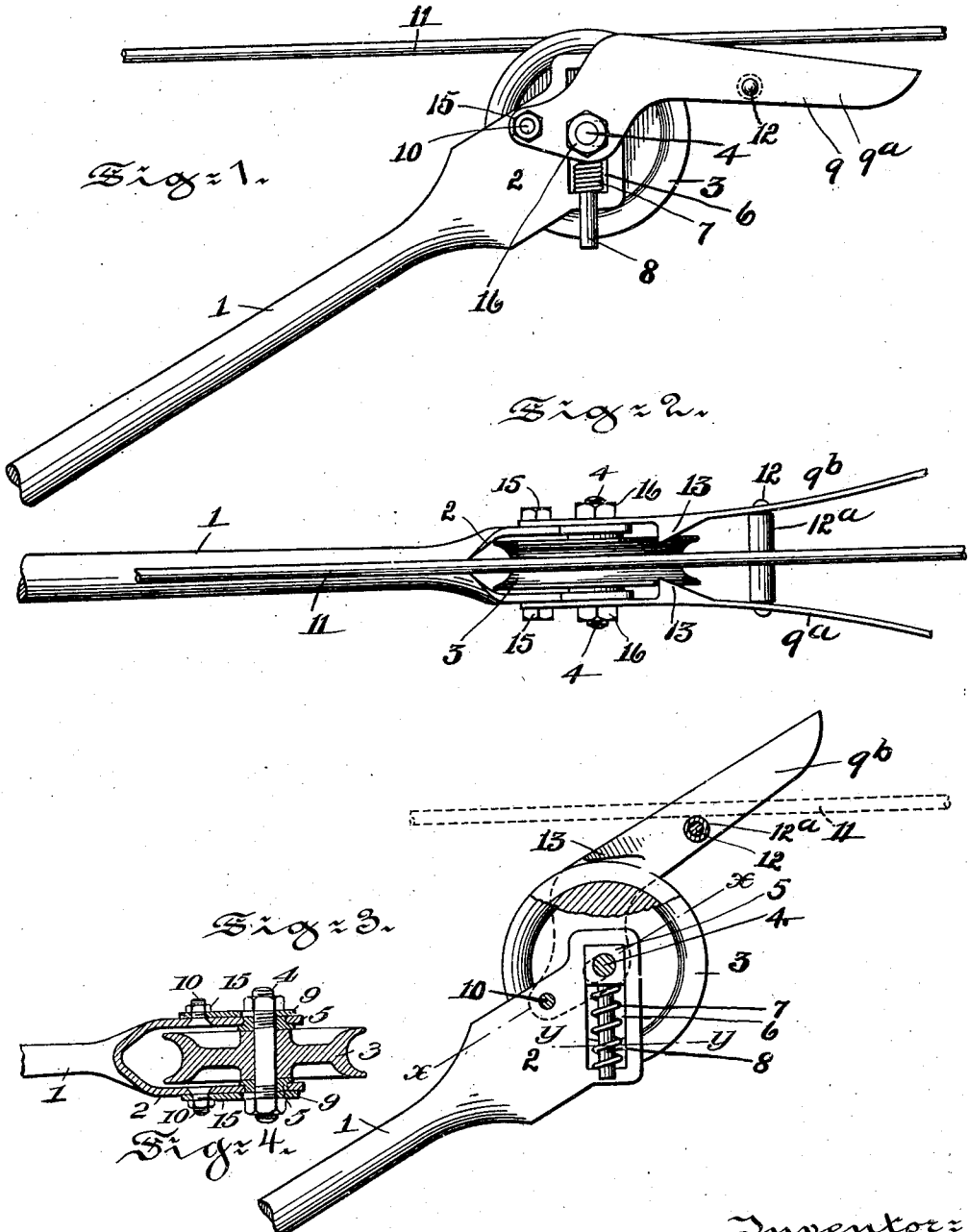


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TROLLEY.
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Patented Oct. 26, 1909.



Witnesses:
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UNITED STATES PATENT OFFICE.

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TROLLEY.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ORSON W. BRENNER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Trolleys, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, of which—

Figure 1 is a side elevation, showing the device in the normal position, when the trolley wheel is in contact with the conductor wire. Fig. 2 is a plan view of Fig. 1. Fig. 3 is a sectional side elevation, showing the device in a position occupied when the trolley wheel is out of contact with the conductor wire. Fig. 4 is a section on line $x-x$, Fig. 3. Fig. 5 is a section on line $y-y$, Fig. 3.

This invention relates to that kind of trolley wherein the pin upon which the trolley-wheel is pivoted is adapted to slide vertically, or thereabout, in a slot or guide-way of the trolley-head, against the stress of a spring that tends to maintain the said wheel in the elevated position there being also a bifurcated guard pivoted to the trolley-head, with which guard the said pin is connected in a manner to cause it, the guard, to swing on its pivot by the descent or elevation of the trolley-wheel.

The invention consists of certain features, designed to avoid certain defects in trolleys of the kind recited, as hereinafter particularly set forth.

In the drawings, 1 designates the trolley-pole; 2, the bifurcated trolley-head thereon; 3, the grooved trolley-wheel, the ends of the shaft or pivot-pin, 4, of which are seated in boxes or blocks, 5, Fig. 3, that are slidable vertically in guide-ways of slots, 6, in the sides of the head 2. These blocks, and consequently the wheel, 3, tend to occupy an extreme elevated position in said slots, through the stress of coiled springs, such as 7, that encircle a pin, 8, depending from each of the blocks, 5.

9 is a bifurcated guard, consisting of two limbs, 9^a, 9^b, on opposite sides of the trolley-head. One end of each limb, is pivoted on a pin or stud, 10 of the trolley-head, a suitable distance forward of the trolley-wheel, and the other end extends backward beyond said wheel and flares outwardly as seen in Fig. 2. Said limbs are loosely, pivotally connected to

the pivot pin 4 of the wheel, by means of slots 9^c (shown in Fig. 4, and in dotted lines in Fig. 3); through which said pin 4 passes, whereby vertical movements of the wheel, and hence pin 4 and blocks 5 will, against stress of springs 7, impart a corresponding movement to guard 9 on its pivot 10.

Normally, the trolley-wheel rides against the conductor wire, 11, through the stress of the usual spring acting upon the trolley-pole, and so depresses said wheel against the stress of spring, 7; consequently maintaining the guide, 9, in the depressed position, as in Fig. 1; but when the wheel jumps the wire, the guard is rotated to the elevated position; that is, in which it is adapted to perform its function as a guard.

The foregoing describes generally the trolley devices that have been known and described. In these devices, as heretofore constructed, when the trolley wheel jumped from the wire, and the guard assumed the elevated position, it remained in that position until again depressed by the wheel coming into contact with the wire. During this interval, the upwardly projecting free ends of the guard were liable to strike against a cross-stay wire, or it might be a branching wire from one street or road to another, and so break such wire, or perhaps the guard, or other parts. The main object of my invention is to improve trolley devices of this character, in a manner to practically obviate the liability to accidents, such as above referred to. This I do by connecting the limbs, 9^a, 9^b, of the guard, by a cross-bar (or preferably a roller) 12; which may act, at the same time, as a stay or brace for said limbs as shown. Normally, that is, when the trolley-wheel is in contact with and pressing against the conductor wire, the wheel and the guard will occupy the depressed position, as in Figs. 1 and 2, at which time the wire will not be in contact with the cross-bar, or roller, 12. If now, the said wheel should jump off the wire, it will instantly, by the force of the springs, 7, move upwardly and consequently the guard will be rotated to the elevated position as in Fig. 3, the wire being between the limbs of the guard. As the trolley pole seeks to recover its normal position through the stress of the spring acting thereon, the cross-bar or roller, 12, will be caused to impinge against the under side of the wire, 11, as in Fig. 3, and

so almost instantaneously depressing the guard, until, finally, when the trolley wheel seats against the wire, it, the guard, re-assumes the normal position of Figs. 1 and 2.

5 In order to direct said wire into the groove of the trolley-wheel when the guard is resuming its normal position as described, I provide on the inner side of each of the limbs of the latter, an inclined projection, 10 13, whose inner end extends to, or slightly within, the edge of the periphery of the wheel, as seen in Fig. 2.

In order to hold the limbs of guard, 9, in place, I employ nuts, 15, on screw-threaded ends of the pivot-pins, 10, and also nuts, 16, 15 on threaded ends of the axis or pivot-pin, 4, of the trolley-wheel. And in order that the bar or roller, 12, may also act as a brace or stay for the guard-limbs, I would usually 20 make said bar or roller of two parts, one of which constituting the bar proper is rigidly secured at each end to the said limbs, and the other part, marked 12^a, being a sleeve freely rotatable on said bar. I also sometimes cut off the ends of the limbs, 9^a 9^b, a 25 short distance beyond the bar or roller, 12, so that said limbs cannot, when in elevated position, possibly strike against a cross-stay wire, or a branch wire. However, if the 30 length of the part of the guard limbs beyond the cross-bar or roller 12, be such that they extend above the plane of a cross-wire, or the like, when the conductor wire contacts with or is adjacent said cross-bar or roller, 35 said limbs would not be liable to impinge

against such cross-wire, as the instant the trolley pole moves upwardly, carrying the cross-bar against the wire, the guard will be depressed in the manner hereinbefore described.

40 Having described my invention, I claim as new and desire to secure by Letters Patent:—

In a device of the character described, the combination with spring-controlled pole 45 having the head thereon, the rotatable spring-controlled trolley-wheel mounted in said head and vertically slidable therein, the bifurcated guard pivoted to said head and pivotally connected to the axis of said wheel, 50 and projecting rearwardly beyond the latter, the guide projections on the inner side of the bifurcations of said guard, said projections extending over the edges of said wheel and having inclined guiding surfaces lead- 55 ing from the bifurcations toward the wheel and terminating inwardly of the lateral edges of the wheel, and the cross bar connecting said bifurcations outwardly of said guide projections and positioned to engage 60 a trolley wire in advance of said wheel during the movement of the wheel toward the wire, substantially as and for the purpose set forth.

In testimony whereof, I have hereunto af- 65 fixed my signature.

ORSON W. BRENIZER.

Witnesses:

WALTER C. PUSEY,
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