

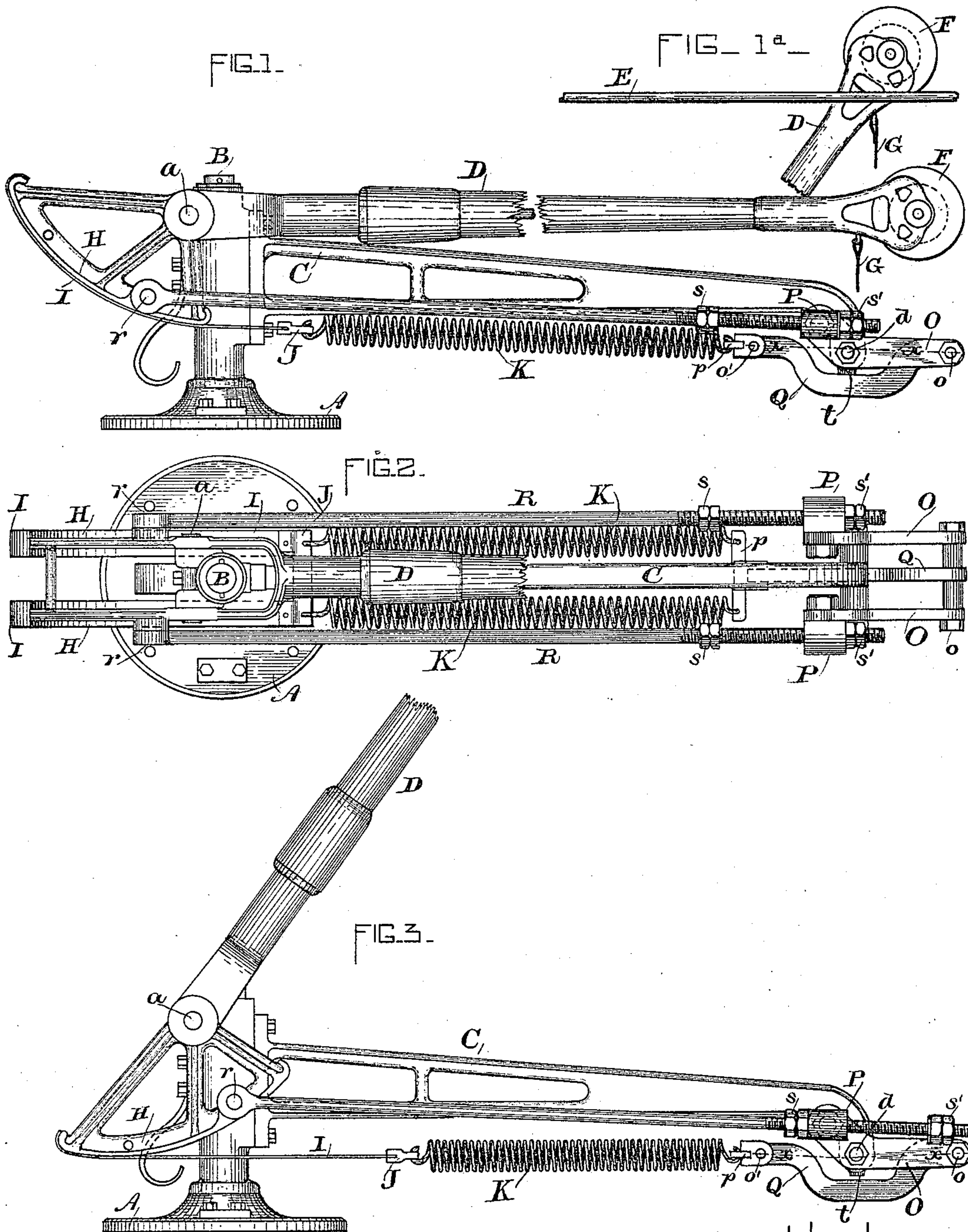
(No Model.)

2 Sheets—Sheet 1.

N. C. BASSETT.
TROLLEY FOR ELECTRIC RAILWAY CARS.

No. 441,123.

Patented Nov. 25, 1890.



WITNESSES.

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INVENTOR.

Norman C. Bassett.

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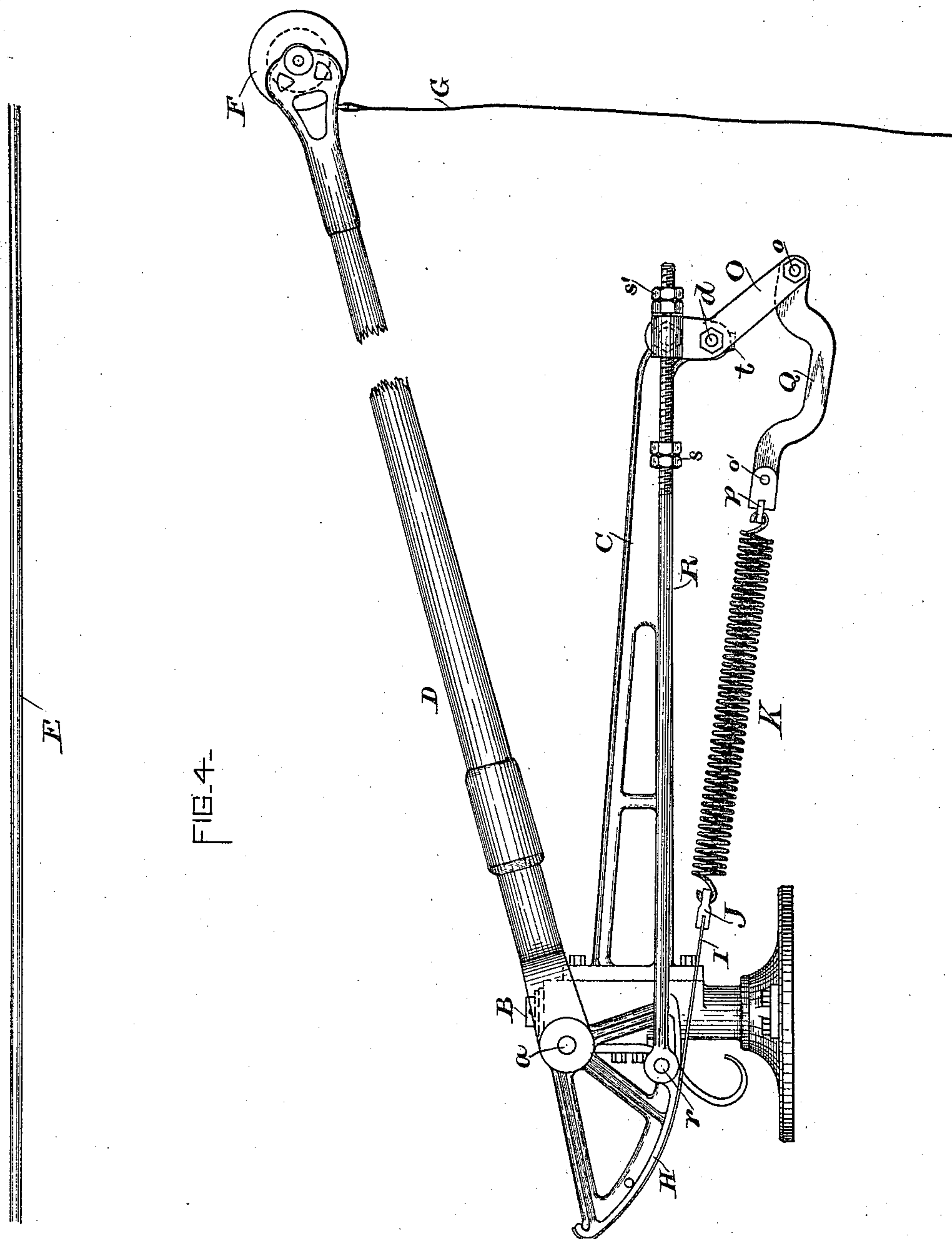
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UNITED STATES PATENT OFFICE.

NORMAN C. BASSETT, OF LYNN, MASSACHUSETTS, ASSIGNOR TO THE
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TROLLEY FOR ELECTRIC-RAILWAY CARS.

SPECIFICATION forming part of Letters Patent No. 441,123, dated November 25, 1890.

Application filed July 26, 1890. Serial No. 360,047. (No model.)

To all whom it may concern:

Be it known that I, NORMAN C. BASSETT, a citizen of the United States, residing at Lynn, county of Essex, and State of Massachusetts, have invented certain new and useful Improvements in Trolleys for Electric-Railway Cars, of which the following is a specification.

My invention relates to trolleys now in common use, which are pressed upward into contact with the under side of a suspended trolley-wire by tension-springs of considerable power.

My object is to overcome certain difficulties attending the use of trolleys of this type, arising from their liability to jump the conductor, and then to fly up and injure either the line structure or trolley-bar by striking against the supporting-wires or insulators.

To get the trolley-bar down quickly after jumping the conductor, some automatic means should be provided, and for this purpose I have devised an arrangement for use with the ordinary trolley, such that, when the trolley jumps the wire, the operating-spring is automatically relieved of its tension. The trolley then drops down to an intermediate position between the conductor and car, and remains there until the parts are again manually reset in their normal operative positions.

My improvements are illustrated in the accompanying drawings, wherein—

Figure 1 is a side view of the trolley in its lowest position. Fig. 1^a is a detail view with the trolley-wheel represented as just having jumped the conductor. Fig. 2 is a plan view of Fig. 1. Fig. 3 is a side view of the trolley raised in the same position as in Fig. 1^a, and Fig. 4 shows the trolley cushioned in its intermediate position between the conductor and the car.

The stand A is attached in the usual manner to the top of the railway-car, and to a vertical stud B upon the stand is journaled the spring-support C. This support will be recognized as of a shape and construction similar to those now in use, and to it is pivoted, upon a transverse axis *a*, the trolley-bar D, free to swing toward and away from the overhead conductor E. This conductor may be suspended over the street by stay-wires and insulators,

such as now in use. Upon the outer end of the trolley-bar is journaled a contact-wheel F, adapted to run in engagement with the under side of the conductor, and to the bar is also attached a pull-down cord G. 55

The lower end of the trolley-bar is forked and terminates in two cam-shaped portions H H, to which are attached two flexible metal straps I I, which are fastened at their other ends to the spring-bar J. The spiral spring or springs K, of which there may be one or more, according to circumstances, are connected at one end to bar J, and thus act upon the trolley, tending to raise it into engagement with the trolley-wire. The other ends of the springs are connected to a movable bearing-piece for the purpose of allowing the tension of the springs to be controlled by the movement of the trolley-bar. This bearing-piece is normally locked against movement, and is arranged in the following manner: 60 65 70

Upon the outer end of the spring-support are pivoted at *d* the side arms O O, carrying at their forward ends pivoted trunnions P P, and connected at their outer ends by a bolt or pin *o*. Upon this latter pin is pivoted the bearing-piece Q, shaped as shown in Fig. 1, and carrying the cross-pin *p*, to which are attached the other ends of the horizontally-arranged spring or springs K. 75 80

Through the trunnions P pass freely connecting rods or links R R, which are pivoted to the lower end of the trolley-bar at *r r*. These links are screw-threaded where they slide through the trunnions, and are provided with adjustable stop-nuts *s s'*, which may be adjusted to allow a predetermined amount of lost motion between the trolley-bar and the pivoted side arms O. 85

The arrangement of the parts O and Q constitute what may be termed a "toggle-lever catch," by which the springs are either locked under tension to press the trolley against the wire or relieved from tension, as the case may be, as will be understood from the following description of the manner in which the device operates. 90 95

Commencing with the parts as shown in Fig. 1, the springs K are stretched to full tension, and tend to lift the trolley against 100

the conductor. The bearing-piece Q rests against the stop *t* in a position such that a straight line *xx*, passing through the centers of *o o'*, will pass above the center of *d*. The bearing-piece will therefore retain its position and hold spring K under tension. As, now, the trolley-bar rises into engagement with the conductor the toggle-lever catch will not be tripped, because the side rods R play freely through the trunnions without turning the side arms O. Should, however, the wheel accidentally jump the wire, the continued movement of the trolley-bar upward causes the forward nuts *s* to strike against the trunnions P, rotating the side arms O, as shown in Fig. 3. This forces the pin *o* downward, so that the straight line *xx* passes below the center of *d*, when the tension of the springs will snap *o* around to a position still lower than that shown in Fig. 4. The tension of the springs being relieved, the trolley automatically drops down to the intermediate position shown in Fig. 4, where it is cushioned before striking the car. This movement causes the rods R to travel through the trunnions until the latter are engaged by the outer nuts *s'*.

To place the apparatus in working condition again it is only necessary to pull the trolley down by cord G to the horizontal position shown in Fig. 1, which results in raising the pin *o* and resetting the toggle-lever catch, so as to hold the spiral springs under tension, as will be readily understood.

What I claim as my invention is—

1. The combination of the pivoted trolley for electric-railway cars, and a spiral spring or springs connected thereto and normally held under tension by a catch, whereby the trolley is pressed into contact with a suspended conductor, with means for automatically relieving said spring of tension and allowing the trolley to drop when the latter jumps the conductor, as described.

2. The combination of a pivoted trolley adapted to contact with the under side of a suspended conductor, with the horizontally-arranged spiral spring or springs connected

at one end to the trolley and at the other end to a movable bearing, and an intermediate connection between the trolley and bearing, whereby the movement of the latter is controlled by the former, as described.

3. The combination of the pivoted trolley with the spiral spring or springs tending to lift the same into contact with a suspended conductor, and connected at its other end to a pivoted bearing-piece normally held against movement, and means, operated by the trolley on jumping the conductor, for turning said bearing-piece, so as to relieve the spring of tension and allow the trolley to drop, as described.

4. The combination of a pivoted trolley and the spring-support with the horizontally-arranged spiral spring or springs, the toggle-catch at the outer end of the spring-support by which the spring is held normally under tension, and an operating connection attached to the trolley-bar and adapted to trip the catch when the trolley jumps the conductor, as described.

5. The combination of the pivoted trolley and the rotating spring-support upon which the trolley is carried, with the spiral springs connected at one end to the trolley-bar and at the other end to a moving cross-pin, and the link forming a connection between the trolley and pin and having provision for lost motion, whereby the movement of the trolley controls the tension of the spring, for the purpose described.

6. The combination, with the pivoted trolley and tension-spring connected thereto, of the side arms O, the pivoted bearing-piece connected thereto, and the intermediate link between the trolley and side arms having provision for lost motion and throwing the bearing-piece to one side or the other of a dead-center, according as the trolley is moved upward or downward, for the purpose described.

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Witnesses:

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