

L. F. MANSFIELD & P. D. SMITH.

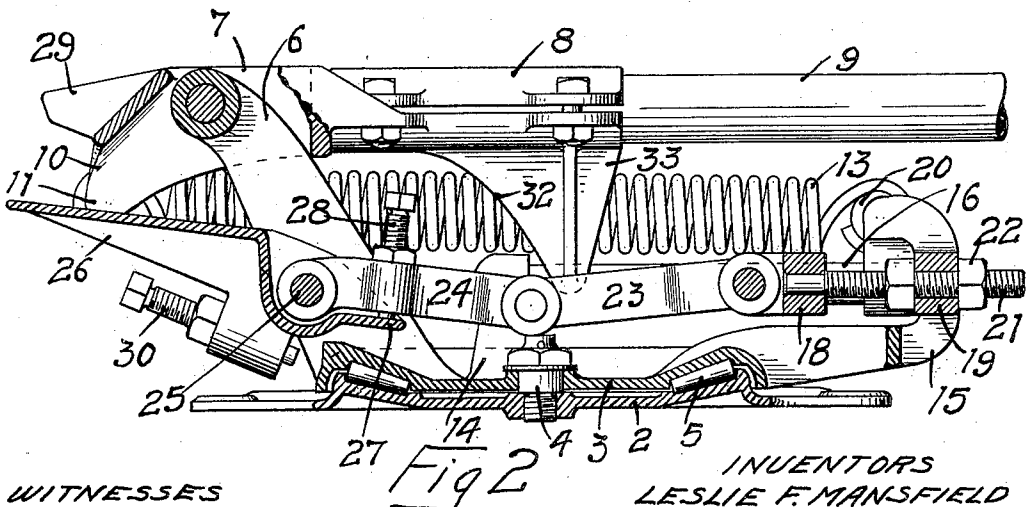
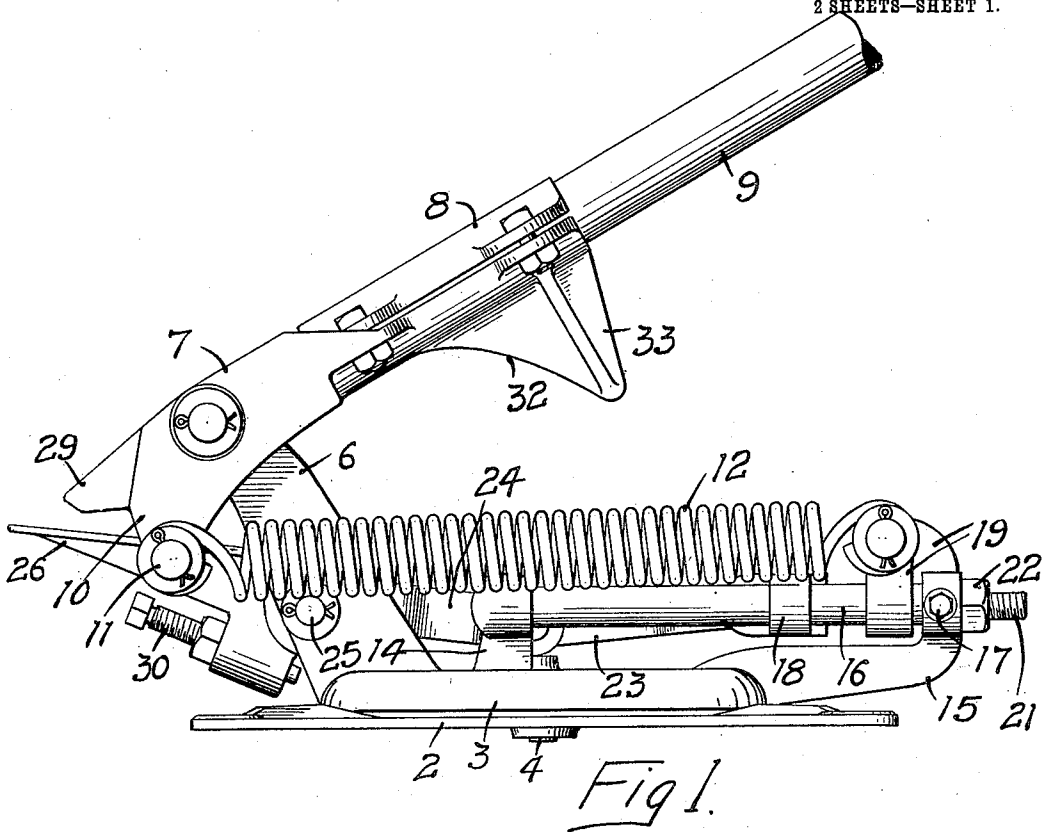
TROLLEY BASE.

APPLICATION FILED JUNE 15, 1908.

935,040.

Patented Sept. 28, 1909.

2 SHEETS—SHEET 1.



WITNESSES

J. A. Byington.

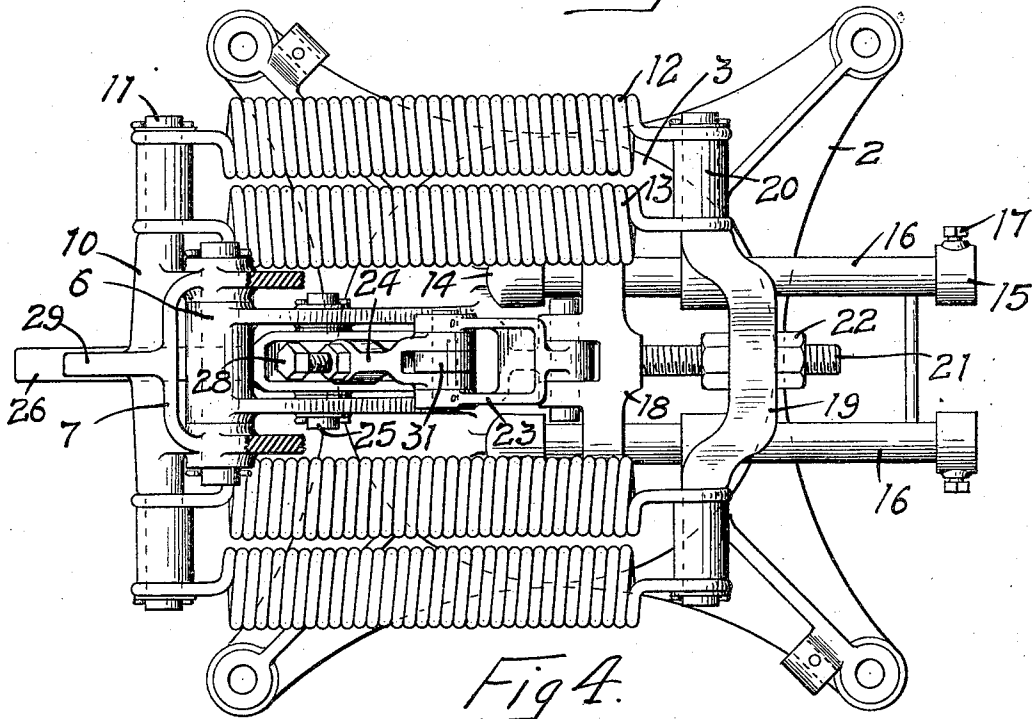
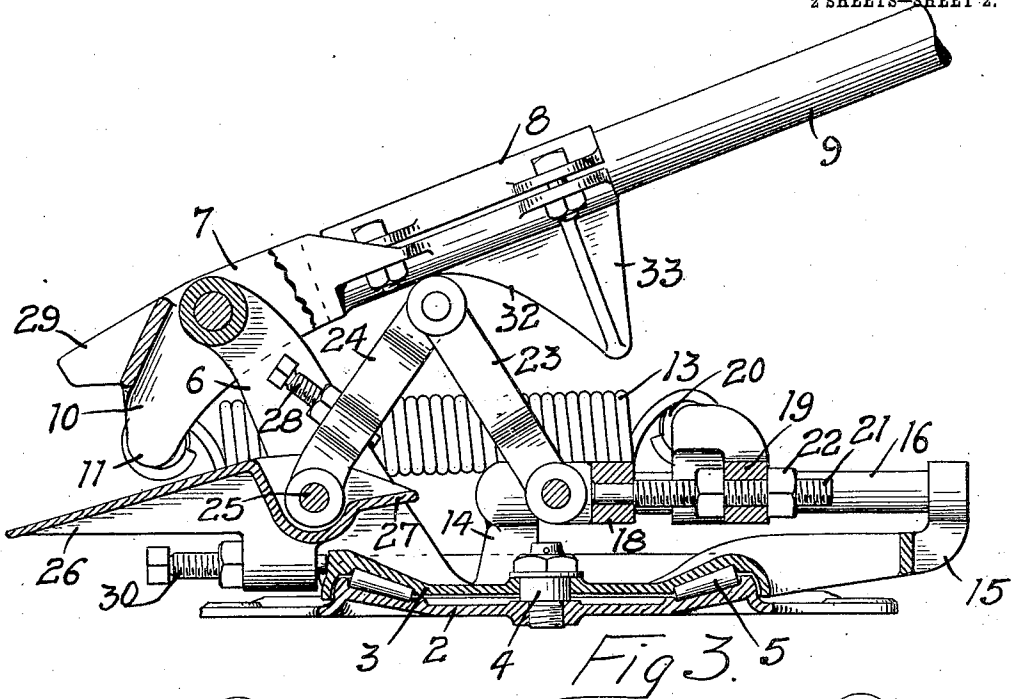
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PAUL D. SMITH

BY *Paul & Paul*
THEIR ATTORNEYS

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WITNESSES

J. A. Brington

INVENTORS
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UNITED STATES PATENT OFFICE.

LESLIE F. MANSFIELD AND PAUL D. SMITH, OF MINNEAPOLIS, MINNESOTA.

TROLLEY-BASE.

935,040.

Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed June 15, 1908. Serial No. 438,449.

To all whom it may concern:

Be it known that we, LESLIE F. MANSFIELD and PAUL D. SMITH, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Trolley-Bases, of which the following is a specification.

Our invention relates to trolley bases for electric cars, and the object of the invention is to provide a support for the trolley pole, which when the pole jumps off the wire will prevent it from striking a cross wire and breaking or damaging the pole.

A further object is to provide a trolley base of simple durable construction and one that is applicable to any style and type of trolley pole.

Our invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of a trolley base embodying our invention. Fig. 2 is a sectional view of the same. Fig. 3 is a sectional view illustrating the tripped position of the pole, as when the mechanism is operated upon the disengagement of the pole from the trolley wire. Fig. 4 is a plan view of the trolley base.

In the drawings, 2 represents a base plate secured by a suitable means to the top of a car.

3 is a cap plate having a central pivotal connection at 4 to the base plate and adapted to revolve on said base plate, anti-friction rollers 5 being interposed between the edges of the plates. The roller bearings 5, as shown in Fig. 3, are tapered from end to end and arranged at an incline on the trolley base so that when the pole is in use the cap plate will bear evenly along the full length of these rollers, thus insuring uniform wear of the parts and a substantial rotary support for the pole. Arms 6 are mounted on said cap plate and extend upwardly and forwardly therefrom and a casting 7 is journaled on said arms, and has a socket 8 in which the trolley pole 9 is clamped. The casting 7 has a forwardly extending portion 10 provided with laterally extending lugs 11 to which the forward ends of coiled springs 12 and 13 are attached, said springs being arranged in pairs, side by side upon each side of the trolley pole.

The cap plate is provided with upright studs 14 arranged side by side near the middle of the plate, and arms 15 extend rearwardly from said plate and between said arms and said studs parallel rods 16 are supported being held in arms 15 by set screws 17. These rods are rigidly held and are adapted to swing with the cap plate in a horizontal plane. Cross heads 18 and 19 are slidably mounted on said rods, the latter having its ends extended on each side beyond said rods and parallel with the studs 11, and to these cross head ends the rear ends of the springs 12 and 13 are attached, being separated from one another by sleeves 20 which are also provided between the forward ends of the springs on the studs 11. A screw 21 is mounted in the cross head 18 and passes through the cross head 19 and is provided with nuts 22 on each side of said cross head for the purpose of adjusting said heads with respect to one another and regulating the normal tension on the coiled springs.

A forked link 23 is pivotally connected at one end to the yoke 18 and a link 24 is pivoted to the one end of the fork 23 and at its other end is mounted on a shaft 25 that is carried by the arms 6. This yoke and link form a toggle joint between the fixed arms 6 of the cap plate and the sliding cross head 18. When these toggle links are under tension the trolley pole will be held toward its wire with a yielding tension. A lever 26 is pivoted on the shaft 25 and has a toe 27 that is adapted to engage an adjustable screw 28 on the link 24 and trip the toggle joint and relieve the tension on the springs. This tripping operation is designed to take place when the trolley pole jumps off the wire and springs forward, and for this purpose we provide a lug 29 on the casting 7 that is adapted to contact with the forward end of the lever 26 and tilt the same sufficiently to move the toggle links upward and break the joint between them allowing the tension of the springs to throw them to the position indicated in Fig. 3.

An adjusting screw 30 is carried by the lever 26 and adapted to engage the cap plate 3 and limit the downward movement of the lever. The toggle joint carries an anti-friction roller 31 arranged to contact with a cam surface 32 provided on a bracket 33 that depends from the socket 8 on the under side of the trolley pole. When the toggle mechan-

ism is tripped and the links assume the position shown in Fig. 3, the anti-friction roller will bear on the cam surface 32 and when the pole is pulled down to its normal position in engagement with the trolley wire the cam surface 32 will engage the anti-friction roller 31 and force the toggle links downwardly against the tension of the springs 7 until they are locked in the position shown in Fig. 2. The person in charge of the car will thus be able to set the toggle mechanism during the operation of adjusting the trolley pole on the wire, the toggle being tripped automatically to relieve the tension on the springs when the pole jumps the wire.

We claim as our invention:

1. The combination, with a trolley pole, of a base whereon the pole is pivoted, parallel rods mounted on said base, cross heads slidably arranged on said rods, and springs attached at one end to one of said cross heads and connected to the pole at their opposite ends, means adjustably connecting one cross head with the other cross head, toggle links pivotally connected at one end to one of said cross heads and having a fixed connection at their other end, and means actuated by the movement of the pole in its upward movement after jumping off the wire for tripping said toggle links, substantially as described.

2. The combination, with a trolley pole, of a base whereon said pole is pivoted, cross heads slidably mounted on said base, means adjustably connecting said cross heads with one another whereby the distance between them can be increased or decreased, springs attached at one end to one of said cross heads and connected to the pole at their opposite ends, toggle links pivotally connected at one end to the other crosshead and adapted when closed or moved into alinement with one another to put said springs under tension, and means actuated by the movement of the trolley pole when released, upon jumping the wire for tripping said toggle links and relieving the tension on said springs.

3. The combination, with a trolley pole and base whereon said pole is pivoted, of a sliding cross head, toggle links pivotally connected with said cross head and adapted to be moved into alinement with one another, springs arranged to be put under tension by the straightening of said toggle links, a lever adapted to engage said links and trip same, and said lever projecting into the path of said pole whereby it will be actuated upon the release of the pole from the wire, substantially as described.

4. The combination, with a base and a trolley pole pivoted thereon, a bracket mounted on said pole and having a cam surface, toggle links mounted on said base in position to be engaged by said cam surface on the downward movement of said pole, and springs mounted on said base, and

means connecting said springs and toggle links whereby said springs will be put under tension, when the toggle is straightened.

5. The combination, with a base, of a trolley pole pivoted thereon, springs mounted on said base and attached at one end to said pole, a sliding cross head whereto the opposite ends of said springs are connected, toggle links pivotally connected at one end to said cross head and to a fixed point at their opposite ends and arranged when straightened to put said springs under tension, and means actuated by the movement of the trolley pole when it jumps the wire for tripping said toggle links and releasing said carriage, substantially as described, said means including a lever and means for varying its time of engagement with said toggle links.

6. The combination, with a trolley pole and springs connected therewith, of a sliding cross head attached to one end of said springs, a second cross head adjustably connected with said first-named head and whereby the tension on said springs can be increased or decreased, toggle links connected with said second cross head and to a fixed point, means actuated by the pole in jumping the wire for tripping said toggle links, and means carried by said pole and arranged to engage said links and straighten them to lock the toggle.

7. A trolley base comprising a revolving cap plate, a trolley pole mounted thereon, parallel rods carried by said plate, cross heads slidably mounted on said rods and having an adjustable connection between them, toggle links connected at one end to one of said cross heads and at their other end to a fixed point, coiled springs attached to the other cross head and to said pole and means actuated by the movement of the pole when it jumps the wire for tripping said toggle links and relieving the tension on said springs.

8. A trolley base comprising a revoluble plate, parallel rods mounted thereon, cross heads slidably mounted on said rods, an adjusting screw connecting said cross heads with one another, a pivoted trolley pole, springs connected at one end with said pole and at their other ends to one of said cross heads, toggle links attached at one end to the other cross head and having a fixed pivotal connection at their opposite ends and adapted when straightened to move said cross heads along said rods and place said springs under tension, and a lever arranged in the path of said pole and adapted to trip said toggle links and relieve the tension of said springs on said pole, substantially as described.

9. The combination, with a trolley pole and tension springs attached thereto, of a sliding cross head connected to said springs, a toggle mechanism having an adjustable

connection at one end with said cross head and adapted to be tripped by the movement of the pole to relieve the tension on said springs, a lever in the path of said pole and
5 adapted to trip said toggle mechanism, and means for timing the contact of said lever with said pole.

10 10. The combination, with a trolley base and a trolley pole pivoted thereon, springs attached at one end to said trolley pole, a cross head whereto the opposite ends of said springs are attached, means for adjusting said cross head to increase or decrease the tension on said springs, a toggle mechanism

connected with said cross head, a lever ar- 15
ranged to be actuated by the movement of the trolley pole when it jumps the wire, said lever having a part beneath the joint of said toggle and arranged to engage and break the said toggle and relieve the tension on said 20
springs, substantially as described.

In witness whereof, we have hereunto set our hands this 4th day of June 1908.

LESLIE F. MANSFIELD.

PAUL D. SMITH.

Witnesses:

RICHARD PAUL,
J. A. BYINGTON.