(No Model.)

E. L. RICHTER.

TROLLEY.

No. 550,458. Patented Nov. 26, 1895.

Fig. 2.

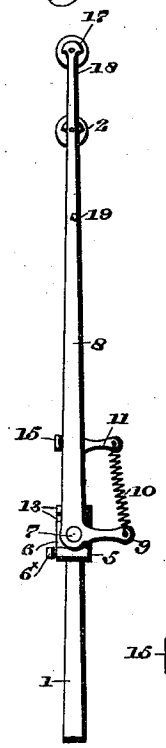


Fig. 1.

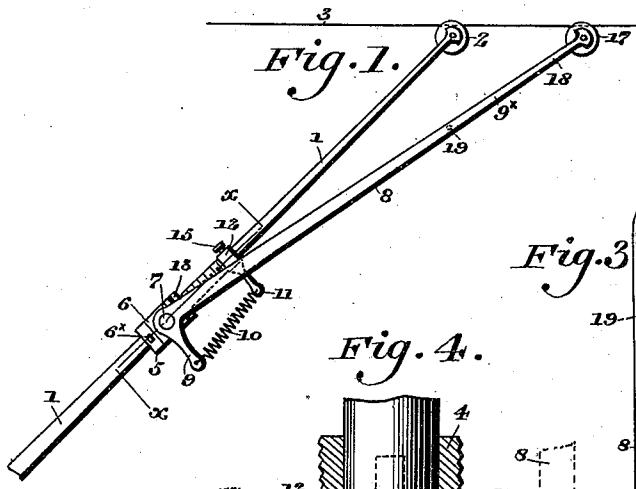


Fig. 3

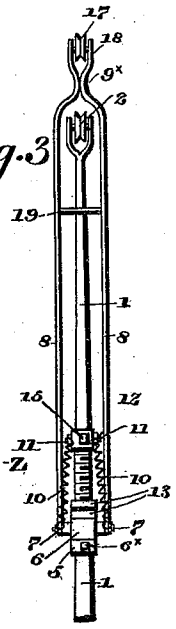


Fig. 4.

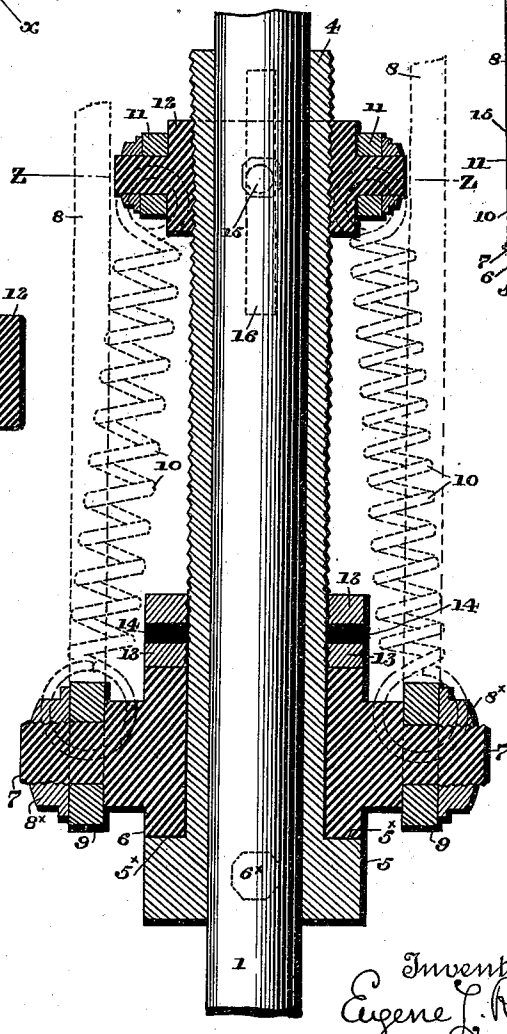


Fig. 5.

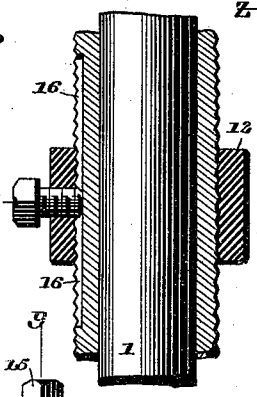
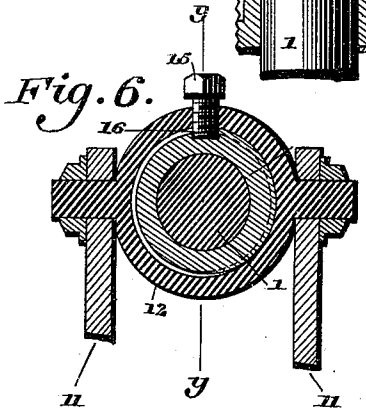


Fig. 6.



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TROLLEY.

SPECIFICATION forming part of Letters Patent No. 550,458, dated November 26, 1895.

Application filed March 27, 1895. Serial No. 543,335. (No model.)

To all whom it may concern:

Be it known that I, EUGENE L. RICHTER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Trolleys, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to trolleys; and it consists of a novel attachment therefor whereby the continuity of the flow of the electric fluid from the feed-wire to the motor on or under a car and to the lights within the same will be unbroken in case the wheel of the main pole reaches a break in said feed-wire; and to this end my invention consists of an auxiliary pole or frame having a trolley wheel or roller journaled in its upper portion, said pole or frame being movable relative to the main or supporting pole, the wheel of said auxiliary pole being adapted to contact with the feed-wire in the rear or front of the wheel of said supporting-pole.

It further consists of novel details of construction, all as will be hereinafter set forth.

Figure 1 represents a side elevation of a trolley-pole embodying my invention and a portion of a trolley-wire to which the same is applicable. Figs. 2 and 3 represent front and side elevations, respectively, of said pole. Fig. 4 represents, on an enlarged scale, a section on line *x x*, Fig. 1. Fig. 5 represents a section on line *y y*, Fig. 6. Fig. 6 represents a section on line *z z*, Fig. 4.

Similar numerals of reference indicate corresponding parts in the several figures.

Referring to the drawings, 1 designates a trolley-pole having the grooved wheel 2 journaled in the upper portion thereof, said wheel being adapted to contact with the feed-wire 3, the above parts being of the usual construction and therefore requiring no further description. To a suitable portion of said pole 1 is secured a sleeve 4, the lower portion of which is provided with a hub 5, having the shoulder $5^{\times}$, which is held in position by means of the set-screw $6^{\times}$, against which shoulder abuts the collar 6, which is provided with the projecting pins or studs 7, upon each of which is movably supported one of the sides 8 of the auxiliary pole or frame $9^{\times}$, the construction of which will be apparent from Figs. 2 and 3, the said side portions being held in position by the nuts $8^{\times}$ or similar devices, and having projecting from the lower portion thereof at an angle the arms 9, to the outer end of each of which is attached one end of one of the springs 10, the other ends of said springs being secured to the pins 11, which are suitably attached to projecting portions of the collar 12, which latter is screwed in the present instance upon the upper portion of said sleeve 4, the pins 11 being held in place by means of nuts or similar devices. The collar 6 is held in position against the shoulder $5^{\times}$ of the hub 5 by means of the nuts 13, between which is interposed the collar or washer 14, one of said nuts thus being adapted to act as a lock-nut. The said collar 12 is provided with a set-screw 15, whose ends are adapted to contact with the longitudinally-extending groove or slot 16 in the threaded portion of the sleeve 4, the construction and location of said groove being apparent from Figs. 4, 5, and 6.

The auxiliary pole or frame $9^{\times}$ has the trolley-wheel 17 journaled in its upper portion 18, said frame being further provided with a brace or stop 19, which consists of a bar or pin extending between the sides 8, whereby it will be seen that although the action of the spring 10 always tends to move said frame 9 toward the main or supporting pole 1, the stop 19 will prevent said frame from ever passing said pole 1.

The manner of assembling the parts will be apparent, the sleeve 4 being first placed on the pole 1 in any suitable manner and held in position by the set-screw $6^{\times}$, the collars 6 and 12 being then placed in position and held by the nuts 13 and set-screw 15, respectively, the latter being prevented from damaging the screw-threads by reason of its entering the slot 16.

The operation is as follows: The wheel 2 of the pole 1 being in contact with the feed-wire 3, as seen in Fig. 1, and the wheel 17 of the auxiliary frame or pole $9^{\times}$ being also in contact with said wire, it will be seen that as the car and pole progress, whenever a circuit-breaker in the feed-wire is reached, or, as is ordinarily the case where the feed-wires of two systems intersect during the period that the wheel 2 is out of contact with said feed-

wire, the roller 17 of the auxiliary pole $9^{\times}$ will be in contact therewith, and in like manner when the wheel 17 reaches the said break and for the time being is out of contact with the feed-wire the wheel 2 will be in contact therewith, and it will thus be seen that the continuity of the flow of the electric fluid from said wire to the motor to or under the car or to the lights within the same will in every instance be practically unbroken, and that since either the wheel 2 or the wheel 17 is always in contact with the feed-wire the temporary extinguishing of the lights in the car will therefore be avoided and the consequent discomfort attendant thereupon.

The tendency of the springs 10 will always be to keep the wheel 17 in contact with the wire 3, and when said wheels 17 and 2 are removed from the wire the parts will assume the position seen in Figs. 2 and 3, the stop 19 limiting the movement of the auxiliary pole $9^{\times}$, as is evident.

The side pieces 8 are preferably bent, as seen in Fig. 3; but it will be of course apparent that changes may be made in the construction and manner of assembling the above parts, and I do not therefore desire to be limited in every instance to the construction I have herein shown and described.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A trolley pole, and wheel, a sleeve on said pole, an auxiliary pole mounted on said sleeve and having a wheel suitably journaled, arms on said auxiliary pole and springs secured to said arms and suitably attached to said trolley pole whereby said poles will be drawn toward each other, substantially as described.

2. A trolley pole and its wheel, a sleeve mounted on said pole, a collar attached to the lower portion of said sleeve, pins on said collar serving as journals for an auxiliary pole, a wheel journaled in the upper portion of the latter, and a spring having one end attached to a suitable portion of said auxiliary pole, the other end thereof being secured to a suitable fixed point, substantially as described.

3. A trolley pole, a sleeve attached thereto, a collar mounted on said sleeve, journals on said collar, an auxiliary pole or frame mounted on said journal, a second collar secured to said sleeve, and a spring intermediate said auxiliary pole, and said last mentioned collar, substantially as described.

4. A trolley pole, a sleeve secured thereto, a pair of collars mounted on said sleeve, the lower one of said collars having journals extending therefrom, the side pieces 8 mounted on said journals, the laterally-extending arms 9 attached to said side pieces, the springs 10 extending from said arms to a suitable portion of said upper collar, a wheel journaled in the upper portion of said side pieces, and a stop or brace attached to the latter, said upper collar being held in position by a set screw passing therethrough, and engaging a groove in said sleeve, the above parts being combined substantially as described.

5. A trolley pole with a wheel, a sleeve adjustable thereon, a frame having sides pivoted to said sleeve and carrying a wheel, a collar adjustable on said sleeve, and a spring secured to an arm on said frame and to said collar, said frame having a cross bar, the parts being combined substantially as described.

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