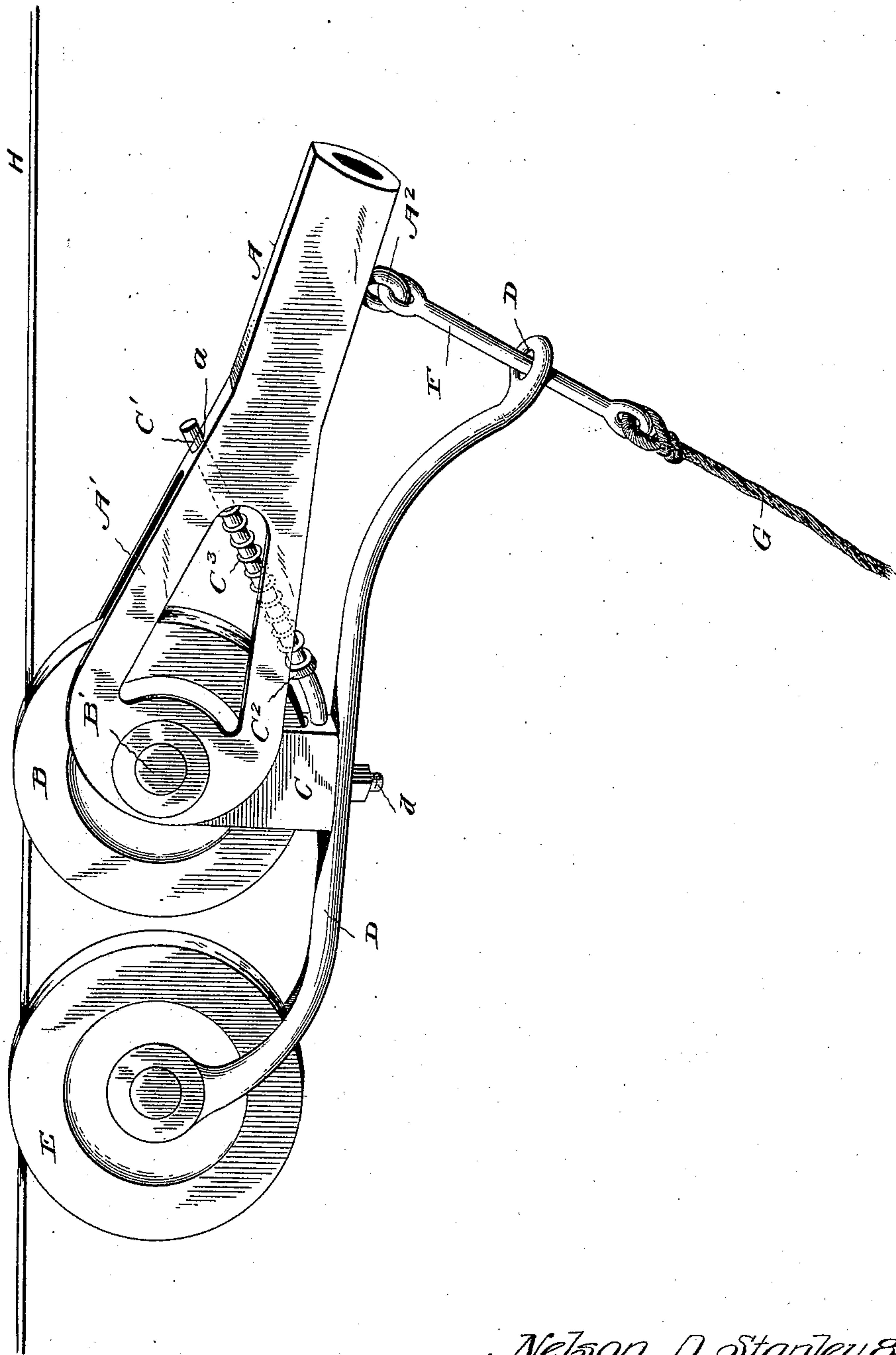


(No Model.)

N. D. STANLEY & J. S. REYNOLDS.
TROLLEY.

No. 574,345.

Patented Dec. 29, 1896.



Witnesses:
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UNITED STATES PATENT OFFICE.

NELSON D. STANLEY AND JOHN S. REYNOLDS, OF ESSEX, VERMONT.

TROLLEY.

SPECIFICATION forming part of Letters Patent No. 574,345, dated December 29, 1896.

Application filed April 16, 1896. Serial No. 587,813. (No model.)

To all whom it may concern:

Be it known that we, NELSON D. STANLEY and JOHN S. REYNOLDS, citizens of the United States, residing at Essex Junction, in the
5 county of Chittenden and State of Vermont, 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 drawing, forming a part thereof, and in which the
10 figure is a side elevation of a trolley with our improvements applied, the upper end only of the pole being shown.

Our invention relates to that class of trolleys in which an auxiliary trolley-wheel is (or wheels are) employed.

The object of the invention is to provide an auxiliary trolley-wheel which may be brought into line with the main wheel by means of the
20 rope by which the trolley-pole is operated. A further object is to provide a simple and effective means by which the auxiliary trolley may freely move up and down and also laterally and yet be controlled by the trolley-rope; also, to provide a simple spring mechanism for throwing the auxiliary trolley up to the line-wire.

The invention will first be described, and then specifically pointed out in the claims.

Referring to the drawing, A represents the upper end of a trolley-pole, which is provided with a fork A', within which the main trolley-wheel B is journaled by means of the spindle B'. From this spindle B' is freely suspended
35 a yoke C, from the lower end of which extends rod C', provided with a shoulder C², and encircled by a spiral spring C³. The rod C' is inclined or curved and extends at its upper end through an aperture *a* in the trolley-pole just at the base of its fork. The
40 spring C³ bears on the shoulder C² and on the trolley-pole at the inner end of the aperture *a* and tends to press the yoke C upwardly.

D is an arm pivoted between its ends by a
45 bolt *d* to the bottom of the yoke C, so as to be swung upwardly by the yoke and yet have a horizontally-turning movement thereon. The outer or upper end of the arm D is curved upwardly and forked to receive the auxiliary
50 rear trolley-wheel E, while the opposite end of arm D extends forwardly beneath the trol-

ley-pole, where it is curved or inclined downwardly and provided with an aperture D'.

A² is an eye secured to the under side of the trolley-pole just in advance of the aperture D', and to which eye is pivotally connected the eye *f* on the upper end of a link
55 F, which extends down through the aperture D'. The trolley-rope G is secured to an eye on the lower end of said link.
60

H is a line-wire, and both wheels B E are shown engaged therewith. Should the main wheel B be forced away from the wire, the current through the trolley will not be broken, as spring C³ will press yoke C upwardly and
65 hold the auxiliary wheel E to the wire. In passing around a curve the auxiliary trolley-wheel will readily follow the curve, as its arm D will then swing horizontally on its pivot or bolt *d*. When a downpull is exerted on
70 rope G, the link F will draw or force the rear end of arm D inward directly under the pole A, which will bring the wheel E in line with the main or front wheel B.

Our invention has reference not only to the
75 continuity of the flow of the current, but it also provides a simple and effective means for collecting any amount of current that may be required. It has been proven that one wheel will not collect a sufficient current
80 to propel the extra large motors now being brought into use; but by this invention one or more than one auxiliary wheel may be used, as occasion may require.

While our invention may be applied to a
85 collector carried by the car in any convenient manner, yet we prefer the form of our device in which the trolley-wheels are carried above the car.

We do not restrict ourselves to the exact
90 construction and arrangement shown, as it is apparent that changes may be made without departing from the spirit of our invention. If desired, the spiral spring may be replaced
95 by any other spring that will accomplish the same result.

What we claim is—

1. The combination with the trolley-pole and main wheel, of a vertically-swinging yoke depending from the spindle or axis of said
100 wheel, an arm secured to the lower end of the yoke and having an auxiliary or rear trolley-

wheel, and a spring pressing the yoke rearwardly and upwardly to hold its wheel to the wire, substantially as described.

2. The combination with the trolley-pole 5 having a fork in which is mounted the main wheel; said pole having an aperture through it at the base of the fork, of a vertically-swinging yoke depending from the axis of said main wheel and having a rod extending upwardly 10 through the aperture in which it slides, a spiral spring on the rod, and bearing against the pole and a shoulder on the rod to press the yoke rearwardly and upwardly, an arm projecting rearwardly and upwardly from the 15 bottom of the yoke and the auxiliary trolley-wheel carried by said arm, substantially as described.

3. The combination with the trolley-pole and the main wheel, of a vertically and transversely movable arm mounted beneath said 20 wheel and extending in front and rear thereof, an auxiliary trolley-wheel carried by the rear upper end of said arm, a link pivoted to the pole and in sliding connection with the lower 25 or forward end of said movable arm and adapted at its lower end to be connected to the trolley-rope, and a spring for holding the auxiliary wheel up to the wire, substantially as described.

30 4. The combination with the trolley-pole and its main wheel, of a vertically-swinging spring-pressed yoke depending from the upper end of the pole, an arm pivoted between its ends to the lower end of the yoke to be 35 swung upwardly therewith and also to swing laterally thereon, an auxiliary wheel mounted on the rear upper end of the arm, and a freely-swinging link depending from the trolley-pole

and passing through an aperture in the forward end of said pivoted arm; the lower end 40 of the link being adapted for connection with the trolley-rope, substantially as described.

5. The combination with the forked trolley-pole and the main trolley-wheel mounted in 45 said fork, of a vertically-swinging yoke depending freely from the wheel-spindle and having a rod extending upwardly and forwardly through the fork and through an aperture in the pole, a spring encircling the rod and pressing it rearwardly, an arm pivoted 50 between its ends to the bottom of the yoke to be swung upwardly therewith and laterally thereon, an auxiliary trolley-wheel mounted on the rear upper end of the arm; an aperture formed in the lower forward end of said arm, 55 and a link pivotally connected with the pole and extending down through said aperture in the arm for connection with the trolley-pole, substantially as described.

6. The combination with the trolley-pole 60 and its main wheel, of a transversely-swinging arm at the under side of the upper end of the pole and projecting rearwardly and upwardly beyond the pole and there provided with an auxiliary trolley-wheel; the lower forward 65 end of the arm being provided with an eye, and a freely-swinging link or connection extending from the pole down through said eye for connection with the trolley-rope, substantially as described.

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