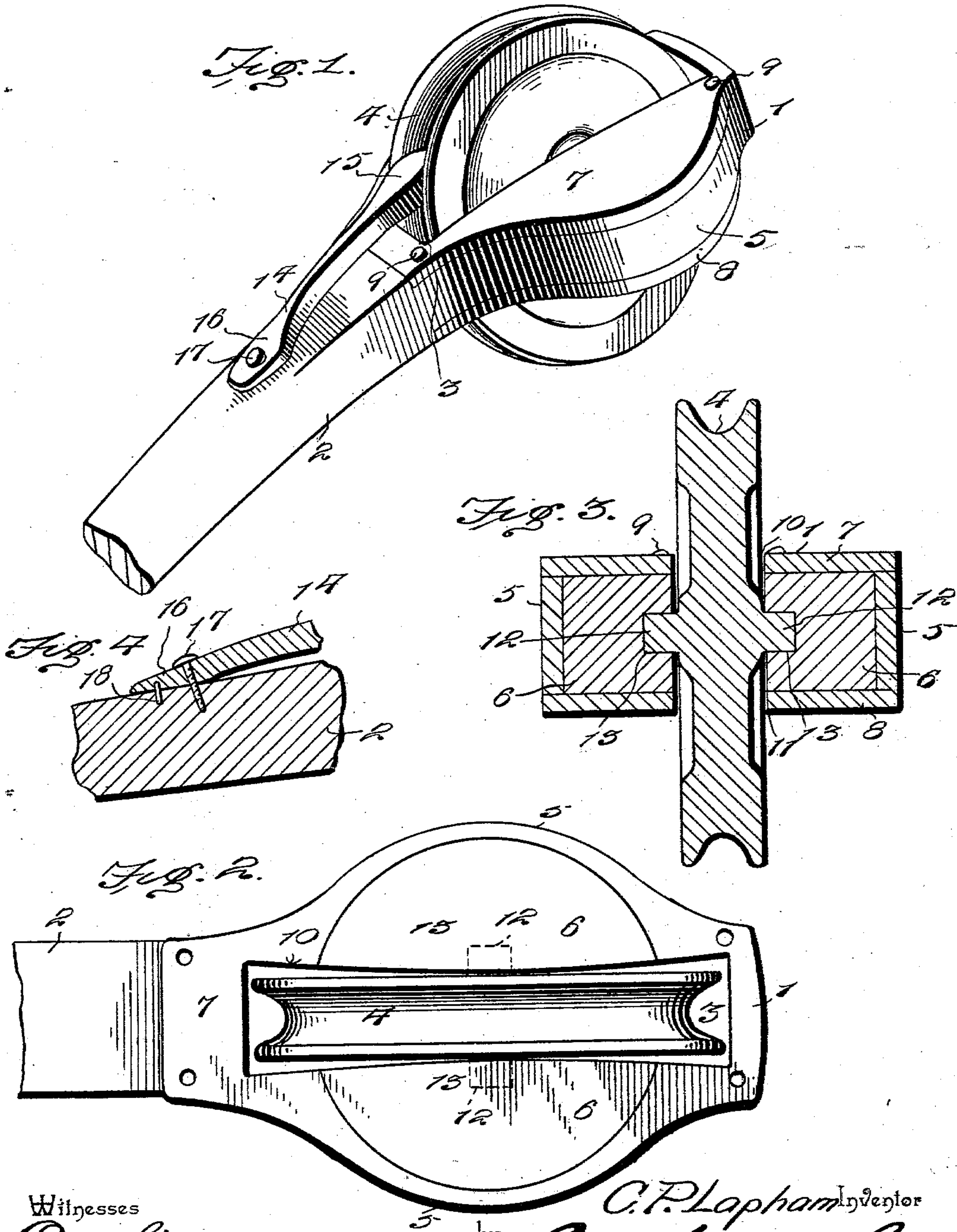


No. 704,749.

Patented July 15, 1902.

C. P. LAPHAM.
TROLLEY POLE ATTACHMENT.
(Application filed Feb. 7, 1902.)

(No Model.)



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UNITED STATES PATENT OFFICE.

CHARLES P. LAPHAM, OF HOUGHTON, NEW YORK.

TROLLEY-POLE ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 704,749, dated July 15, 1902.

Application filed February 7, 1902. Serial No. 93,034. (No model.)

To all whom it may concern:

Be it known that I, CHARLES P. LAPHAM, a citizen of the United States, residing at Houghton, in the county of Allegany and State of New York, have invented a new and useful Trolley-Pole Attachment, of which the following is a specification.

The invention relates to improvements in trolley-pole attachments.

The object of the present invention is to improve the construction of trolleys for electric cars, more especially the manner of mounting the trolley-wheel, and to provide a simple, inexpensive, and efficient device of this character in which the trolley-wheel will be permitted a limited lateral play to permit the same to adjust itself automatically and pass freely around the angles in a trolley-wire over a curved portion of the track without running off the trolley-wire.

A further object of the invention is to provide an automatically-adjustable trolley-wheel which will be normally retained in alignment with the trolley-wire and which will be prevented from being deflected by switch-plates.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of a trolley-pole attachment constructed in accordance with this invention. Fig. 2 is a plan view, the upper plate of the trolley-wheel-receiving frame or holder being removed to illustrate the arrangement of the oscillatory bearing blocks or segments. Fig. 3 is a transverse sectional view. Fig. 4 is a detail sectional view illustrating the manner of mounting the spring on the shank of the frame or holder.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a trolley-wheel-receiving frame or holder, having a shank 2 adapted to be secured to or form a part of a trolley-pole and provided with a longitudinal opening 3 for the reception of a trolley-wheel 4. The frame or holder 1 has its sides 5 curved outward between the end portions to provide bearing-

faces and to form bearing-recesses for oscillatory bearing blocks or segments 6, which are retained in the frame or holder by upper and lower plates 7 and 8, secured to the said frame or holder by suitable fastening devices 9 and forming, with the said frame or holder, a casing for supporting the oscillatory bearing blocks or segments 6. The end portions of the opening of the frame or holder, beyond the bearing-recesses formed by the curved sides, are flared outwardly, and the upper and lower plates 7 and 8, which are provided with longitudinal openings 10 and 11, have the end portions thereof oppositely flared to conform to the configuration of the flared portions of the opening of the frame or holder and to permit the necessary lateral play or vibration of the trolley-wheel. The trolley-wheel is provided at opposite sides with journals 12, which are arranged in suitable bearings 13, consisting of sockets located at the centers of the inner faces of the bearing blocks or segments. The inner longitudinally-disposed faces 13 of the bearing blocks or segments have central straight portions which fit against the central or hub portions of the trolley-wheel, and the outer portions of the inner faces 13 are cut away to clear the trolley-wheel, and thereby reduce the friction to a minimum. The trolley-wheel, which is adapted to rotate freely on the journals or in the bearings for the journals, is capable of a limited lateral vibration to enable it to adjust itself automatically, whereby it is adapted to follow a trolley-wire around the angles over a curved portion of the track without liability of running off the said trolley-wire.

The trolley-wheel is maintained normally in alignment with the trolley-wire by means of a longitudinal spring 14, having an enlarged tapered head 15 and provided with an enlarged rear portion or inner end 16, which is secured by a suitable fastening device 17 to the shank of the frame or holder and which is held against lateral movement by a projection 18, extending into a socket of the spring. The tapered head or engaging portion 15 extends between the sides of the groove of the trolley-wheel, and the intermediate portion of the spring is reduced and is sufficiently resilient to permit the trolley-wheel to spring

laterally and adjust itself automatically to the trolley-wire, and thereby follow the same around a curve in the track and over the angles of the trolley-wire without running off the latter. The spring is shown applied to the shank at the top of the same; but it may be mounted with equal facility at the bottom of the device.

What I claim is—

10 1. A device of the class described comprising a frame or holder having an opening enlarged at the sides to form bearing-recesses and flared at the ends, upper and lower plates secured to the top and bottom of the frame
15 or holder and provided with openings flared at the ends to conform to the configuration of the adjacent portions of the said opening, bearing-blocks arranged in the said recesses and located between the upper and lower
20 plates, said bearing-blocks being capable of a limited oscillation, and a trolley-wheel arranged between and mounted on the blocks, substantially as described.

2. A device of the class described comprising a frame or holder having an opening enlarged at its sides to form bearing-recesses and flared at its ends, upper and lower plates arranged at the top and bottom of the frame
25 or holder and cooperating with the same to form a casing and having longitudinal openings flared at the ends, bearing blocks or segments arranged in the said recesses between
30 the upper and lower plates and provided at

their inner faces with bearing-sockets, and a trolley-wheel provided at opposite sides with
35 journals arranged in the said sockets and carried by the bearing blocks or segments, substantially as described.

3. A device of the class described comprising a frame or holder having an opening enlarged at opposite sides to form bearing-recesses, upper and lower plates mounted on the frame or holder and covering the recesses, bearing blocks or segments mounted in the
40 recesses of the frame or holder and provided at their inner faces with bearing-sockets, and a trolley-wheel provided at opposite sides with journals fitting in the said bearing-sockets, substantially as described.

4. A device of the class described comprising a frame or holder, a grooved trolley-wheel mounted thereon and capable of a limited oscillatory movement, and a spring having a reduced intermediate portion and provided with a tapered head extending into the groove
50 of the trolley-wheel and adapted to hold the latter normally in alinement with the trolley-wheel, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in
60 the presence of two witnesses.

CHARLES P. LAPHAM.

Witnesses:

JOHN A. HOWLETT,
W. ROBBINS.