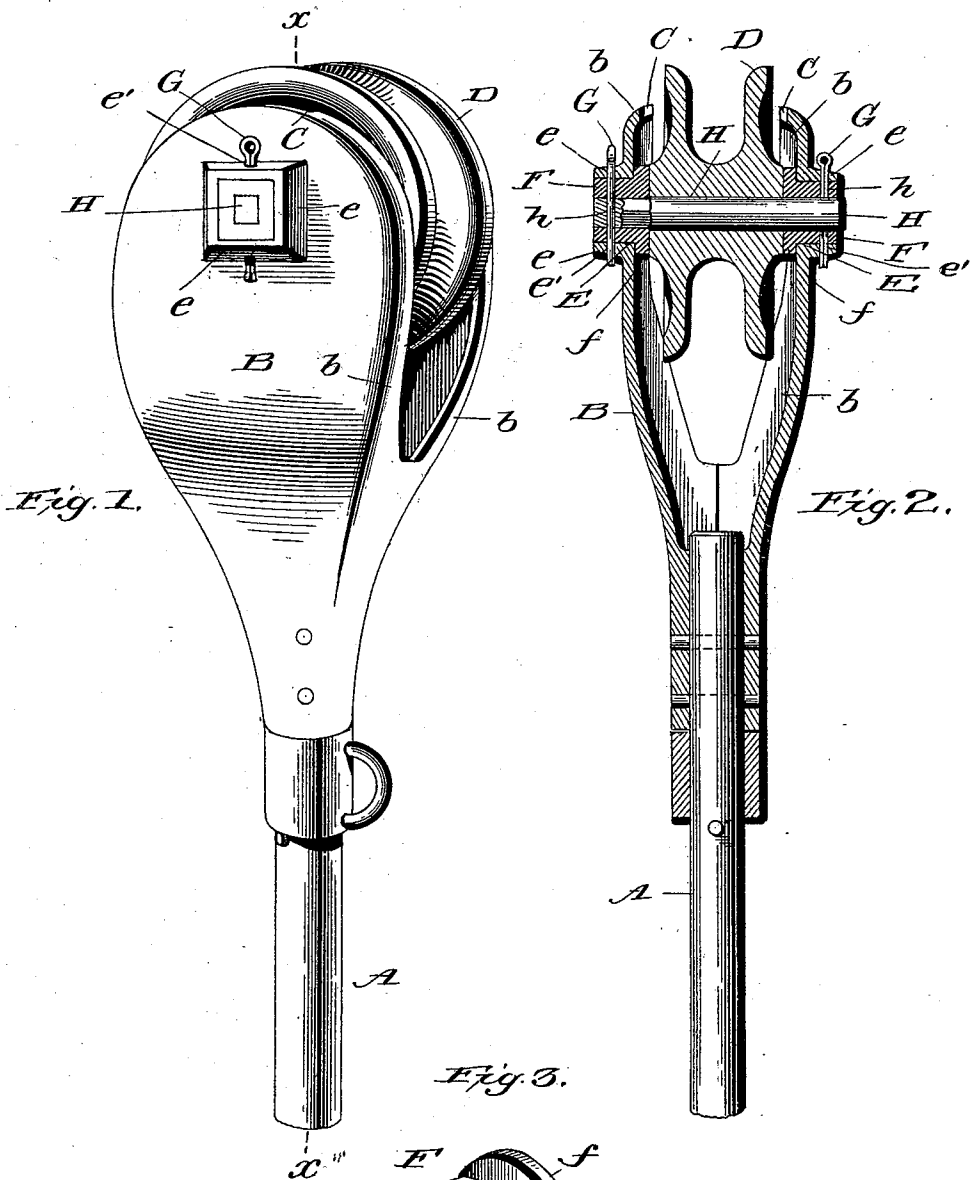


(No Model.)

J. A. WILLIAMS.
TROLLEY.

No. 514,801

Patented Feb. 13, 1894.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN ALEXANDER WILLIAMS, OF ALTOONA, PENNSYLVANIA.

TROLLEY.

SPECIFICATION forming part of Letters Patent No. 514,801, dated February 13, 1894.

Application filed October 7, 1893. Serial No. 487,446. (No model.)

To all whom it may concern:

Be it known that I, JOHN ALEXANDER WILLIAMS, a citizen of the United States, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Trolley-Wheel Supports; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in trolley arms and supports, and more particularly to a new construction of "harp," for carrying the trolley wheel, supported on the contact end of a trolley pole, and I aim to produce an invention of the character described, which will be hereinafter more fully explained in detail and clearly illustrated.

The invention consists further in the novel construction, combination and adaptation of the parts as will be hereinafter described, and then specifically defined in the appended claim.

I clearly illustrate my invention in the following drawings, which with the letters of reference marked thereon form a part of this specification, like letters of reference indicating like parts throughout the several views, in which—

Figure 1, is a perspective view of my improved harp, supporting a trolley wheel, and secured to the free end of a trolley pole. Fig. 2, is a longitudinal section on the line *x, x* of Fig. 1, and, Fig. 3, is a detail view of one of the removable shaft blocks seated in the sides of the harp.

Reference now being had to the details of the drawings by letter, A, designates the trolley pole secured to an electric car, at the free end of which is secured the bifurcated trolley wheel support or harp B, with its arms having a lateral expansion to allow the wheel D, to be journaled between said arms of the

harp. The inner edges of the said arms have inwardly extending flanges *b* to better protect the trolley wheel, and at the upper extremity of each arm is a recess C provided to allow the said wheel to be readily removed from the harp, when it is desired to replace the worn box.

In each arm of the wheel support are the square shaped openings E, in which are seated the removable blocks or shaft holders F, and about each opening is the projecting portion *e* which affords a substantial socket for the said shaft block, and *e'* are eyes through which the keys G, pass to lock the boxes F in the arms of the harp. One end of the shaft H on which the trolley wheel turns, is squared to fit an aperture in one of the blocks as shown in Fig. 1, the other end of the said shaft being round to fit in an aperture corresponding in shape in the other shaft block, shown in Fig. 3, and the said keys G pass through the aperture *h* to lock shaft to the box F which has the flanged portion *f* offering a bearing surface against the shank of the trolley wheel.

It will be readily seen that a bifurcated trolley harp constructed in accordance with my invention will be very durable, as when the boxes supported in the arms of the wheel support, become worn, they can be readily replaced by new ones, at a trivial expense.

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

In a trolley device, the combination of a bifurcated hanger having the edges of said arms curved inwardly, of removable shaft blocks seated in sockets in the said bifurcated members, and a trolley wheel shaft keyed to the said blocks and to integral portions of the harp or hanger, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN ALEXANDER WILLIAMS.

Witnesses:

F. S. TIERNEY,
F. D. STRANEY.